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ABSTRACT

This testbook contains objective tests for each topic in the "Tilesetting Workbook" (see note) for use in the classroom portions of the union four-year apprentice tilesetting program in California. Tests are all multiple choice and are usually two pages in length. Tests are provided for each of the 44 topics covered in the five units of the tilesetting workbook. Material covered includes history and scope of the tilesetting trade, safe working practices, trade organizations, materials, tools, and processes used in the trade, job processes, blueprint and specification reading, and special jobs such as tile floors, steam rooms, ceilings, mosaics, curved arches, swimming pools and stairs. Black-and-white drawings are used in some of the tests. Test pages are perforated for removal from the book, and are suitable for pass out to students or for reproduction. Answers are not included. (KC)

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Tilesetting Testbook

CALIFORNIA STATE DEPARTMENT OF EDUCATION Wilson Riles, Superintendent of Public Instruction Sacramento, 1981

It is recommended that this book be kept in the instructor's file and each test be detached and given to the student as he or she becomes ready for it. After the test has been graded and discussed, it should be returned to the instructor's file.

NAME _____

ADDRESS _____

_____ PHONE _____

DATE ENROLLED _____

INSTRUCTOR(S) _____

Tilesetting Testbook

Prepared under the direction of the
CALIFORNIA STATE EDUCATIONAL ADVISORY
COMMITTEE FOR THE TILESETTING INDUSTRY
and the
BUREAU OF PUBLICATIONS,
CALIFORNIA STATE DEPARTMENT
OF EDUCATION

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A complete list of publications available from the Department of Education, including instructional materials for some 23 other trades, is available from the address given above.

Questions and comments about existing apprenticeship materials or the development of new materials should be directed to:

Theodore R. Smith or Bob Klingensmith
Bureau of Publications
California State Department of Education
721 Capitol Mall
Sacramento, CA 95814
(916) 445-7608

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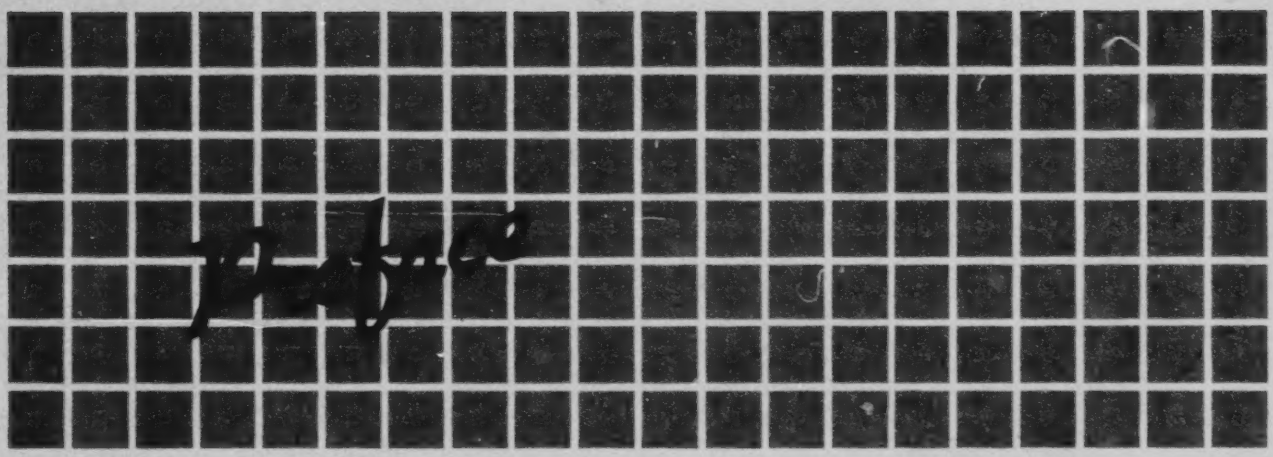


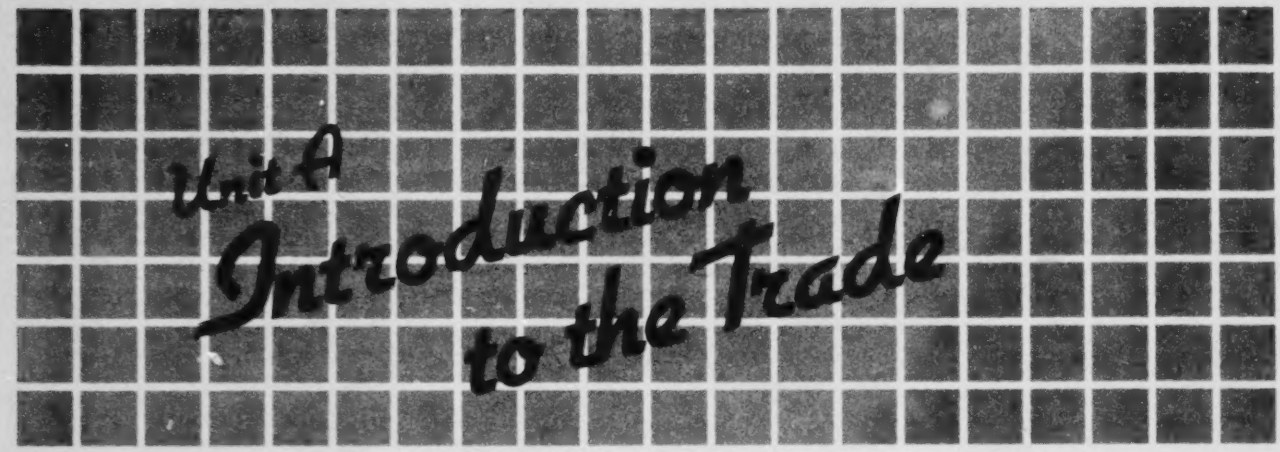
This testbook contains objective tests for each topic in the *Tilesetting Workbook*. The value of these tests depends to a great extent on the care taken by instructors and school supervisors in keeping them confidential.

The workbook and testbook were planned and approved by the California State Educational Advisory Committee for the Tilesetting Industry. The chairman of this committee was George Lavenberg of Los Angeles. The other members included James Feruzzi, Los Angeles; Jack Howe, Sacramento; Erich Paarsch, Los Angeles; Spiro Papadakis, Pacifica; Edward Pitton, Sacramento; and Lewis Swinney, San Diego. Special thanks are expressed to these individuals for their invaluable contributions.

Instructors and supervisors should feel free to modify the application of the workbook material and the tests to satisfy local needs. Also, the instructors will probably supplement the information in the workbook with other material that they have developed, and they will need to augment the tests with questions based on any supplementary material they may use.

Supervisors and instructors should be aware that the test pages are perforated to facilitate removal of the tests, either individually or as a complete set, at the discretion of the instructor or supervisor.

THEODORE R. SMITH
Editor in Chief
Bureau of Publications



TOPIC 1 — HISTORY AND SCOPE OF THE TRADE

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Finding tiles today in Egyptian pyramids is proof that tile is: 1. ____

   a. Economical
   b. Easy to clean
   c. Durable
   d. Beautiful

2. Tilesetting is recognized as one of the basic trades in which industry? 2. ____

   a. Manufacturing
   b. Construction
   c. Utilities
   d. Service

3. Which one of the following materials is handled by the tilesetter? 3. ____

   a. Ceramic mosaics
   b. Concrete blocks
   c. Brick
   d. Gypsum blocks

4. Who were the first people to develop tilemaking into an art? 4. ____

   a. Arabs
   b. Babylonians
   c. Persians
   d. Egyptians

5. The people responsible for introducing the use of tile through large parts of the ancient world were the: 5. ____

   a. Spanish
   b. Egyptians
   c. Babylonians
   d. Arabs

6. The journey-level tilesetter may not be required to work on which of the following types of construction? 6. ____

   a. Chimneys
   b. Domes
   c. Fountains
   d. Stairs

7. Which one of the following processes is not included in apprenticeship agreements? 7. ____

a. Preparing surfaces for tiling
b. Reading blueprints
c. Doing necessary brickwork
d. Repairing tiled surfaces

8. Early American tiles were used chiefly for the construction of: 8. ____

a. Arches
b. Fountains
c. Domes
d. Mantels

9. Tiles were first successfully manufactured in the United States in the state of: 9. ____

a. New Jersey
b. New York
c. Ohio
d. Pennsylvania

10. Which one of the following materials is not used in the tilesetting trade? 10. ____

a. Gypsum blocks
b. Smalti-type tiles
c. Ceramic veneers
d. Glass mosaics

UNIT A — INTRODUCTION TO THE TRADE

TOPIC 2 — SAFE WORKING PRACTICES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. When epoxies or mastics are being used, the tilesetter should: 1. ____

   a. Avoid having them in prolonged contact with the skin.
   b. Apply them to a damp surface.
   c. Use them in a room that contains an open flame.
   d. Use them in a closed room.

2. Which of the following is not a recommended practice for someone who is handling epoxies and mastics? 2. ____

   a. Do not use in a room with an open flame.
   b. Use water to wash off any that spills on the hands.
   c. Use only in rooms that are tightly closed.
   d. Read the label before using.

3. When tilesetters are working on a scaffold, which of the following practices is not recommended? 3. ____

   a. Be sure of their footing.
   b. Throw material down.
   c. Lower material by hoist.
   d. Lower material by rope.

4. Which one of the following is not a recommended safety measure to be followed when electrical equipment is being used? 4. ____

   a. Ground all electrical tools.
   b. While they are in use, keep extension cords looped over nails.
   c. Use only heavy-duty extension cords.
   d. If the supporting surface is wet, wear rubber-soled shoes.

5. If someone working nearby should come into contact with a live power wire, the very first thing that should be done is: 5. ____

   a. Try to shake the person.
   b. Turn off the power.
   c. Administer first aid.
   d. Pull the person off the wire without contacting either the person or the energized object.

6. The Division of Occupational Safety and Health will investigate the causes of any accident that results in a serious injury to: 6. ____

   a. One or more employees
   b. Three or more employees
   c. Five or more employees
   d. Seven or more employees

7. What must an employer do prior to starting work on a job that involves substantial risk to employees? 7. ____

a. Rope off the danger area.
b. Install scaffolding.
c. Obtain a project permit from the Division of Occupational Safety and Health.
d. Place warning signs around the project.

8. When an employee files a complaint with the Division of Occupational Safety and Health concerning unsafe working conditions, the division must investigate the complaint: 8. ____

a. Within three working days
b. Within five working days
c. Within seven working days
d. Within ten working days

9. The agency responsible for occupational safety and health standards and orders is the: 9. ____

a. State Department of Health Services
b. Division of Health and Safety
c. Health and Welfare Agency
d. Occupational Safety and Health Standards Board

10. In California, any employment-related injury is considered to be a serious injury when inpatient hospitalization is required for more than: 10. ____

a. 24 hours
b. 48 hours
c. 72 hours
d. 1 week

UNIT A — INTRODUCTION TO THE TRADE

TOPIC 3 — TRADE ORGANIZATIONS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Which one of the following functions normally is not performed by the Ceramic Tile Institute? 1. ____

   a. Bargaining on wages and working conditions
   b. Testing materials and methods of installation
   c. Working with committees in writing codes
   d. Distributing publicity on activities in the tile industry

2. The research center in Princeton, N.J., where work is done in developing quality materials and improving installation methods is supported by the: 2. ____

   a. IUBAC
   b. Tile Contractors Association of Northern California
   c. Ceramic Tile Institute of America
   d. Tile Council of America

3. Who represents the employers in bargaining negotiations? 3. ____

   a. Ceramic Tile Institute
   b. Tile Council of America
   c. Building Trades Council
   d. Tile Contractors Association

4. The Tile Council of America was formed by: 4. ____

   a. Manufacturers only
   b. Employees and employers
   c. Employers only
   d. Employees only

5. The first successful Ceramic Tile Institute in California was formed in: 5. ____

   a. Los Angeles
   b. San Jose
   c. Sacramento
   d. San Francisco

6. The register number assigned to an apprentice is issued by the: 6. ____

   a. IUBAC
   b. Local tilesetters union
   c. Building Trades Council
   d. AFL-CIO

7. The first Ceramic Tile Institute was formed in: 7. ____

   a. Chicago
   b. Denver
   c. Los Angeles
   d. Phoenix

8. The IUBAC holds a convention: 8. ____

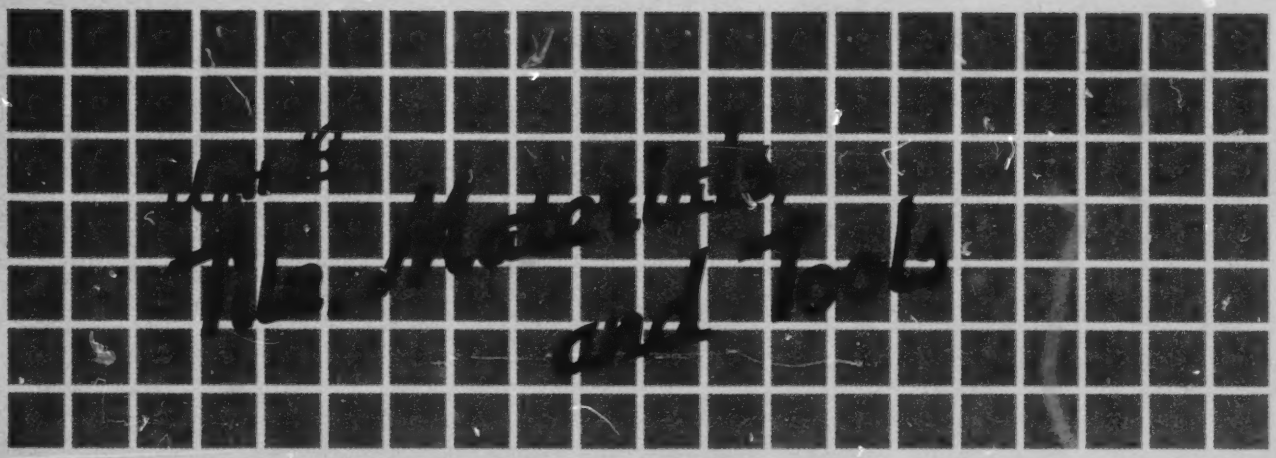
   a. Every year
   b. Every two years
   c. Every three years
   d. Every four years

9. The tilesetters unions belong to the: 9. ____

a. Tile Council of America
b. Ceramic Tile Institute
c. Local building trades councils
d. Tile industry associations

10. So far as the interests of the union are concerned, the responsibility of enforcing apprenticeship agreements rests with the: 10. ____

a. Central Labor Council
b. IUBAC
c. State Federation of Labor
d. Local union



TOPIC 1 — MANUFACTURE OF CERAMIC TILE

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Large pieces of tile are made by what process? 1. ____

   a. Slush-mold
   b. Extrusion
   c. Ram-press
   d. Dust-press

2. Which one of the following statements is not true of vitreous tile? 2. ____

   a. It will absorb more than 7 percent moisture.
   b. It will absorb less than 3 percent moisture.
   c. Its color usually is contained in the mixture of tile body.
   d. It generally requires only one firing.

3. Dust-pressed tile is known as "green" tile at what stage in its manufacture? 3. ____

   a. While in the second firing
   b. After the second firing
   c. Before the first firing
   d. After it passes through the first firing

4. The forming process that gives the tile manufacturer the least control over tolerance of size is: 4. ____

   a. Ram-press
   b. Extrusion
   c. Dust-press
   d. Slush-mold

5. Quarry tiles are made by which one of the following processes? 5. ____

   a. Dust-press
   b. Extrusion
   c. Ram-press
   d. Slush-mold

6. Most ceramic wall tiles are formed by what process? 6. ____

   a. Slush-mold
   b. Dust-press
   c. Ram-press
   d. Extrusion

7. How much moisture will nonvitreous tile absorb? 7. ____

a. Between 2 and 5 percent
b. More than 7 percent
c. 0.0 to 0.5 percent
d. Less than 3 percent

8. Which of the following terms identifies the process of manufacturing ceramic veneers? 8. ____

a. Extrusion
b. Dust-press
c. Ram-press
d. Slush-mold

9. When tile is ready for the glost firing, the tile is called: 9. ____

a. Bisque
b. Standard
c. Green
d. Plastic

10. An impervious tile has a water absorption of: 10. ____

a. More than 7 percent
b. 3 to 7 percent
c. 0.5 to 3 percent
d. Less than 0.5 percent

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 2 — TYPES OF TILE

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Glass mosaics generally are mounted on sheets of what size? 1. ____

   a. 12 by 12 in. (30.5 by 30.5 cm)
   b. 10 by 16 in. (25.4 by 40.6 cm)
   c. 10 by 10 in. (25.4 by 25.4 cm)
   d. 6 by 10 in. (15.2 by 25.4 cm)

2. Which one of the following tiles will fade under sunlight? 2. ____

   a. Ceramic mosaic
   b. Colored cement
   c. Quarry
   d. Faience

3. Because of a special treatment of the glaze and bisque, faience tiles have a: 3. ____

   a. Machined finish
   b. Thick base
   c. Handmade appearance
   d. Slick surface

4. Smalti-type mosaic tiles vary in thickness from: 4. ____

   a. ⅛ to ⅜ in. (0.3 to 1.0 cm)
   b. ⅛ to ½ in. (0.3 to 1.3 cm)
   c. ¼ to ½ in. (0.6 to 1.3 cm)
   d. ½ to ¾ in. (1.3 to 1.9 cm)

5. The ceramic mosaic tiles that have a smooth, hard finish are known as: 5. ____

   a. Gold venetian
   b. Porcelains
   c. Pavers
   d. Natural clays

6. Which one of the following installations would not require quarry tile? 6. ____

   a. Shower receptors
   b. Chemical plants
   c. Roof decks
   d. Beverage plants

7. Tile industry specifications stipulate that all cement tiles must be: 7. ____

   a. Equal in size
   b. Uniform in smoothness
   c. Made from a specific mix
   d. None of the above

8. What is the minimum facial area of paver tiles? 8. ____

   a. 1 in.^{2} (6.5 cm^2)
   b. 4 in.^{2} (26 cm^2)
   c. 6 in.^{2} (39 cm^2)
   d. 8 in.^{2} (52 cm^2)

9. Which of the following tiles is occasionally used on floors in place of quarry tiles? 9. ____

   a. Glazed ceramic
   b. Paver
   c. Faience
   d. Smalti mosaic

10. What type of coloring material is used in cement tiles? 10. ____

a. Carbon
b. Clay
c. Inorganic
d. Organic

11. Which of the following is not considered a major type of tile according to the amount used in the United States? 11. ____

a. Quarry
b. Ceramic veneer
c. Ceramic mosaic
d. Faience

12. Ship and galley tile is a special kind of what type of tile? 12. ____

a. Ceramic mosaic
b. Faience
c. Quarry
d. Glazed ceramic

13. Tiles made from a mix of portland cement and sand or aggregate are called: 13. ____

a. Ceramic mosaic
b. Faience
c. Glazed ceramic
d. Cement

14. An imported glass mosaic tile listed as 2.5 by 2.5 centimetres in size would be considered what equivalent size in inches? 14. ____

a. ½ by ½ in.
b. 1 by 1 in.
c. 1½ by 1½ in.
d. 2 by 2 in.

15. Which of the following types of tile has an exposed aggregate surface? 15. ____

a. Organic
b. Paver
c. Cement
d. Glazed ceramic

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 3 — BASE MATERIALS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The purpose of using aggregates in mortar mixes is to: 1. ____

   a. Increase resiliency.
   b. Hasten development of mortar strength.
   c. Increase their water resistance.
   d. Prevent shrinkage of mortar as it dries.

2. What base material is most generally used for tile installations? 2. ____

   a. Organic adhesive
   b. Butadiene latex
   c. Portland cement mortar
   d. Thin-set portland cement mortar

3. The additive that is used with portland cement mortar mixes to accelerate the setting of the cement is: 3. ____

   a. Calcium chloride
   b. Polyvinyl acetate
   c. Butadiene latex
   d. Asphalt emulsion

4. The aggregate most generally used in mortar mixes for setting tile is: 4. ____

   a. Vermiculite
   b. Perlite
   c. Sand
   d. Calcium chloride

5. Unless the specifications say otherwise, ceramic tile should be set with which type of portland cement? 5. ____

   a. I
   b. II
   c. III
   d. IV

6. Under what condition is high-early-strength portland cement used for tile installations? 6. ____

   a. When the installation is to be exposed to water of high sulfate content
   b. When the installation is to be exposed to water of high alkali content
   c. When the plaster scratch coat needs to be water resistant
   d. In cold weather

7. What type of portland cement is used for structures that are exposed to severe sulfate action? 7. ____

   a. I
   b. III
   c. IV
   d. V

8. The normal distance between caulked expansion joints required for tiled roof decks is: 8. ____

   a. 16 in. (40.6 cm)
   b. 30 in. (76.2 cm)
   c. 16 ft. (4.8 m)
   d. 30 ft. (9.1 m)

9. What is the chief reason for using plastic cement in the plaster scratch coat? 9. ____

a. The installation is to be exposed to water of low sulfate content.
b. The installation is to be exposed to water of high alkali content.
c. The installation is to be made in hot weather.
d. Plastic cement absorbs less water from the wall mortar.

10. Calcium-chloride-based additives are sometimes used to: 10. ____

a. Coat the tiles before grouting.
b. Accelerate the setting of mortar.
c. Stabilize the mortar mix.
d. Strengthen colored grout.

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 4 — BACKINGS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. When building paper is required for a tile installation, it is placed directly over the: 1. ____

   a. Scratch coat
   b. Studding
   c. Shrinkage mesh
   d. Float coat

2. Metal lath may be fastened to steel studs with: 2. ____

   a. Adhesives
   b. Staples
   c. Tie wire
   d. 4d nails

3. The use of tie wire ensures that the scratch coat will have uniform: 3. ____

   a. Thickness
   b. Weight
   c. Rigidity
   d. Strength

4. Which one of the following materials is not recommended over the studs where tile is to be set? 4. ____

   a. Duplex reinforced asphalt paper
   b. A "breather" type asphalt-saturated paper
   c. 13-lb. (6-kg) coal-tar-saturated waterproof building felt
   d. 15-lb. (7-kg) asphalt-saturated waterproof building felt

5. Wood studs that are more than 8 in. (20.3 cm) on center are laced with: 5. ____

   a. Wire mesh
   b. Preformed steel mesh
   c. Patented fasteners
   d. Tie wire

6. Which one of the following practices is recommended when metal lath is to be used under tilework? 6. ____

   a. Drive nails to full depth.
   b. Fasten lath very tightly to studding.
   c. Use stapling machine to fasten lath to studding.
   d. Drive nails to only three-quarters of their depth, and bend them to secure lath.

7. Which one of the following types of surfaces does not require metal lath? 7. ____

   a. Steel
   b. Solid backing
   c. Wood stud backing
   d. Concrete

8. When shrinkage mesh is used on wall work, it should be secured over wood studs and solid backing with: 8. ____

   a. Steel expansion bolts
   b. Staples
   c. Steel tie wire
   d. Furring nails

9. How is a waterproof cleavage membrane installed? 9. ____

a. Over tie wire
b. Under tie wire
c. Over metal lath
d. Over shrinkage mesh

10. What material is sometimes used in place of metal lath as a backing for wall work? 10. ____

a. Fiber board
b. Shrinkage mesh
c. Gypsum board
d. Asphalt building paper

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 5 — LAYOUT AND LEVELING TOOLS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. To determine the degree of angle to cut for fitting trim or molding into a corner, the tilesetter needs a(n): 1. ____

   a. Steel square
   b. Combination square
   c. Trammel bar
   d. Angle divider

2. What tool is used on small jobs in place of the framing square? 2. ____

   a. Angle divider
   b. Combination square
   c. Trammel bar
   d. Straightedge

3. The most useful sizes of spirit levels used by the tilesetter are 12 in. (30.5 cm), 24 in. (61 cm), and: 3. ____

   a. 8 in. (20.3 cm)
   b. 10 in. (25.4 cm)
   c. 48 in. (121.8 cm)
   d. 50 in. (127 cm)

4. When a water level is used, the only time the ends of the tubes are left open is when: 4. ____

   a. Marks are being established.
   b. Part of the level is in the sun, and part is in the shade.
   c. The level is being moved from mark to mark.
   d. The work is being done outdoors.

5. The plumb bob is a useful tool for: 5. ____

   a. Establishing grade marks
   b. Floating and straightening mortar beds
   c. Checking the plumb and level of float strips
   d. Indicating vertical directions

6. The tool that is often used as a compass for laying out tile floors is the: 6. ____

   a. Angle divider
   b. Framing square
   c. Trammel bar
   d. Spirit level

7. Another name for the compass scribe is: 7. ____

   a. Combination square
   b. Trammel bar
   c. Angle divider
   d. Wing divider

8. If a water level is accurate, how much of a difference can be tolerated in the height of water in the two tubes? 8. ____

   a. None
   b. ⅛ in. (0.3 cm)
   c. ⅜ in. (1.0 cm)
   d. ½ in. (1.3 cm)

9. Which of the following items is used with the spirit level to plumb and level float strips? 9. ____

a. Builder's transit
b. Mason's line
c. Straightedge
d. Water level

10. To plumb short float strips where the projections prevent the use of a spirit level in the vertical position, the tilesetter can use a: 10. ____

a. Trammel bar
b. Framing square
c. Chalk line
d. Water level

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 6 — CUTTING AND DRILLING TOOLS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. To remove excess material from the backs and edges of wall and quarry tile, the tilesetter should use: 1. ____

   a. Tin snips
   b. Nippers
   c. A chipping hammer
   d. A hacksaw

2. The most useful handsaw for the tilesetter is a crosscut saw with how many teeth to the inch? 2. ____

   a. Six
   b. Seven
   c. Eight
   d. Nine

3. What does the tilesetter use on the cut edges of tile? 3. ____

   a. Sandpaper
   b. Nippers
   c. Carborundum rubbing stones
   d. Emery cloth

4. When a dry Carborundum blade is being used on an electric table saw, the tilesetter should wear: 4. ____

   a. Goggles and respirator
   b. Gloves and hard hat
   c. Metal hat
   d. Safety shoes

5. Which of the following tools is used by the tilesetter to remove old grout on quarry floors? 5. ____

   a. Chipping hammer
   b. Chisel
   c. Piece of hard metal
   d. Portable electric saw

6. For durability, chipping hammers, chisels, and drill bits are capped with: 6. ____

   a. Carborundum
   b. Diamonds
   c. Tungsten carbide
   d. Copper

7. The use of Carborundum blades on electric saws is largely confined to cutting what kind of tile? 7. ____

   a. Glass mosaic
   b. Ceramic mosaic
   c. Soft patio
   d. Smalti type

8. Which of the following tools is used to cut metal towel bars? 8. ____

   a. Hacksaw
   b. Metal saw
   c. Steel saw
   d. Portable electric saw

9. What tool is used to cut metal lath? 9. ____

   a. Metal saw
   b. Hacksaw
   c. Tin snips
   d. Portable electric saw

10. Which of the following tools is used to cut tile for inside curves? 10. _____

a. 8-in. (20.3-cm) nippers
b. 10-in. (25.4-cm) nippers
c. Tile cutter
d. Tin snips

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 7 — MORTAR TOOLS AND OTHER SPECIAL TOOLS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. What should the tilesetter use to establish the plane of a setting bed? 1. ____

   a. Beating block
   b. Trammel bar
   c. Straightedge
   d. Floating strip

2. To butter the largest tiles, the tilesetter should use the: 2. ____

   a. Buttering trowel
   b. Pointing trowel
   c. Brick trowel
   d. Grouting trowel

3. What is the smallest trowel that is used by the tilesetter? 3. ____

   a. Pointing trowel
   b. Buttering trowel
   c. Grouting trowel
   d. Mortaring trowel

4. The trowel that is used with the hawk to transfer mortar from the mortarboard to the wall is the: 4. ____

   a. Pointing trowel
   b. Buttering trowel
   c. Flat trowel
   d. Brick trowel

5. The tilesetter's most useful trowel is the: 5. ____

   a. Brick trowel
   b. Flat trowel
   c. Pointing trowel
   d. Buttering trowel

6. The rectangular-shaped trowel used by the tilesetter is the: 6. ____

   a. Pointing trowel
   b. Flat trowel
   c. Brick trowel
   d. Buttering trowel

7. To provide a satisfactory key on the scratch coat for the float coat, the tilesetter uses a: 7. ____

   a. Trammel bar
   b. Straightedge
   c. Notched trowel
   d. Scratcher

8. The beating block is made of what material? 8. ____

   a. Steel
   b. Aluminum
   c. Wood
   d. Rubber

9. What is the purpose of a mortar machine? 9. ____

   a. To measure sand
   b. To mix mortar
   c. To spread mortar
   d. To force mortar through a hose

10. To smooth small irregularities in the mortar bed, the tilesetter may use a: 10. ____

a. Mortarboard
b. Straightedge
c. Flat board
d. Wood float

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 8 — GROUTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. To make regular portland cement grout water repellent, the tilesetter should add: 1. ____

   a. Ammonium stearate paste
   b. Asphalt
   c. Muriatic acid
   d. Lumnite powder

2. Which type of grout is recommended as both a bond coat and as a grout for tilework in food and beverage plants? 2. ____

   a. Lumnite cement
   b. Resin-based grout
   c. Sodium silicate
   d. Sulfur-based grout

3. The specially compounded waterproof grouts intended for use principally with glazed ceramic wall tile are known as: 3. ____

   a. Lumnite cement grouts
   b. Resin-based grouts
   c. Proprietary grouts
   d. Sulfur-based grouts

4. Where normal wear conditions exist, the tilesetter should use a grout that is: 4. ____

   a. Hard and dense
   b. Soft and thin
   c. Absorptive and porous
   d. Acid resistant

5. Silicate grouts should not be used over a portland cement base unless which one of the following items is applied between the grout and the base? 5. ____

   a. Leveling coat
   b. Metal lath
   c. Hot-mopped tar membrane
   d. Shrinkage mesh

6. Which of the following procedures is not recommended during the preparation of a grout mix? 6. ____

   a. Mix grout and water thoroughly.
   b. Use only hot water for mixing.
   c. Keep all foreign matter out of mixture.
   d. Use only clean buckets for mixing.

7. Proprietary grouts should be mixed with a minimum of: 7. ____

   a. Lime
   b. Water
   c. Mortar
   d. Cement

8. Some resin-based cement grouts can also be used as a: 8. ____

   a. Bond coat
   b. Scratch coat
   c. Leveling coat
   d. Backing for tile

9. Epoxy grouts are made by mixing: 9. ____

a. Sodium silicate and cement
b. Silicate liquid and lime
c. Two heavy liquids
d. Lumnite cement and water

10. Which of the following statements concerning the specially compounded proprietary grouts is false? 10. ____

a. They leave surfaces that are easier to clean than those of regular portland cement grouts.
b. They are easier to mix in water than regular portland cement grouts.
c. They set in less time than regular portland cement grouts.
d. They provide a water-repellent surface.

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 9 — INSERTS AND ACCESSORIES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The installation of bathroom accessories and inserts is a responsibility of the tilesetter when these items are to be installed in: 1. ____

   a. Tilework
   b. Plaster walls
   c. Walls of any material
   d. None of the above

2. When the lugs are being set for the posts on towel bars, measurements should be made from: 2. ____

   a. Center to center of holes
   b. Outside of one hole to inside of second hole
   c. Inside of one hole to outside of second hole
   d. Top of one hole to bottom of second hole

3. What kind of fasteners for wall-plate type accessories tend to shrink when exposed to moisture? 3. ____

   a. Lag screws
   b. Toggle bolts
   c. Bluehead fasteners
   d. Wood plugs

4. To determine whether accessories are to be installed, the tilesetter should study the: 4. ____

   a. Work permit
   b. Job description
   c. Specifications
   d. Blueprints

5. Bathroom accessories must be balanced and: 5. ____

   a. Mortared
   b. Centered
   c. Trimmed
   d. Grouted

UNIT B — TILE, MATERIALS, AND TOOLS

TOPIC 10 — EXPANSION JOINTS AND ELASTOMERIC SEALANTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Expansion joints should extend to the: 1. ____

   a. Wire mesh
   b. First substrate
   c. Last substrate
   d. Bench mark

2. How far apart should interior expansion joints be placed? 2. ____

   a. 30 to 40 ft. (9 to 12 m)
   b. 45 to 50 ft. (13.5 to 15 m)
   c. 60 to 70 ft. (18 to 21 m)
   d. 70 to 80 ft. (21 to 24 m)

3. What should be the distance between exterior expansion joints? 3. ____

   a. 4 to 6 ft. (1.2 to 1.8 m)
   b. 8 to 10 ft. (2.4 to 3 m)
   c. 12 to 14 ft. (3.6 to 4.2 m)
   d. 16 to 20 ft. (4.8 to 6 m)

4. What should be the maximum size of a working butt joint? 4. ____

   a. 1 by ½ in. (2.5 by 1.3 cm)
   b. 1 by 3 in. (2.5 by 7.6 cm)
   c. 2 by ¾ in. (5.1 by 1.9 cm)
   d. 2½ by 4½ in. (6.4 by 11.5 cm)

5. What should be the minimum size of a working butt joint? 5. ____

   a. 1/16 by 1/16 in. (0.2 by 0.2 cm)
   b. ⅛ by ⅛ in. (0.3 by 0.3 cm)
   c. ¼ by ¼ in. (0.6 by 0.6 cm)
   d. ½ by ½ in. (1.3 by 1.3 cm)

Unit C
Blueprints and Specifications

TOPIC 1 — BLUEPRINTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The builder usually obtains complete instructions from the: 1. ____

   a. Specifications and building material dealers
   b. Blueprints and specifications
   c. Owner and the blueprints
   d. Specifications and building ordinances

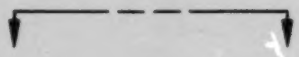
2. Specifications are written statements that: 2. ____

   a. Supplement the blueprints.
   b. Authorize the contractor to start work.
   c. Describe the code requirements.
   d. Give information on materials only.

3. The line illustrated below is known as a(n): 3. ____

   a. Dimension line
   b. Long break line
   c. Invisible object line
   d. Border line

4. The line illustrated below is known as a(n): 4. ____



   a. Centerline
   b. Extension line
   c. Section line
   d. Visible object line

5. Visible object lines are the: 5. ____

   a. Heaviest or next-to-heaviest lines on the sheet
   b. Same thickness as extension and dimension lines
   c. Lightest lines on the sheet
   d. Same thickness as invisible object lines

6. The lines on Van Dyke prints are: 6. ____

a. Blue
b. White
c. Purple
d. Brown

7. Which of the following lines is used on blueprints to represent an invisible object? 7. ____

a. ——————————
b. — — — — — — — — —
c. ——— — ———
d. ◄——————►

8. Finished architectural drawings usually are: 8. ____

a. Drawn directly on tracing paper with pencil
b. Drawn in ink on good quality white paper
c. Made in pencil on drawing paper, then checked and traced in ink
d. Traced over the preliminary sketches, then completed with ink

9. The real purpose of filing copies of plans with the building inspector is to: 9. ____

a. Protect the property owners in the community.
b. Ensure that no errors are made during construction.
c. Meet safety requirements.
d. Enable assessors to determine tax valuations.

10. Which of the following items of information would not be shown on the prints and specifications? 10. ____

a. Color of tile
b. Type of mortar
c. Backing to be used
d. Cost of installation

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 2 — PLAN VIEWS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The cutting line that is used for preparing floor plans is at what point? 1. ____

   a. Right at floor level
   b. At ceiling level
   c. A little distance above the floor
   d. Always at the tops of windows

2. Overhead cabinets are usually indicated on a plan view by a: 2. ____

   a. Heavy line
   b. Broken line
   c. Visible object line
   d. Series of dotted lines

3. The actual thickness of the drawing of a frame wall on a plan view drawing is usually not more than: 3. ____

   a. 1/16 in. (0.2 cm)
   b. 1/8 in. (0.3 cm)
   c. 3/16 in. (0.5 cm)
   d. 1/4 in. (0.6 cm)

4. A plan view can always be identified, because it: 4. ____

   a. Is drawn so that the reader looks down on a structure
   b. Shows the interior construction of partitions
   c. Shows more details than any other type of view
   d. Represents the cross section of a structure

5. The correct abbreviation for *ceramic* is which one of the following? 5. ____

   a. CE
   b. CC
   c. C
   d. CER

6. The correct abbreviation for *threshold* is: 6. ____

   a. TH
   b. T
   c. THD
   d. THR

7. The correct abbreviation for *mortar* is which one of the following? 7. ____

   a. MORT
   b. M
   c. MR
   d. MOR

8. The correct abbreviation for *cement floor* is: 8. ____

   a. CF
   b. CFL
   c. CEF
   d. CEM FL

9. The correct abbreviation for *cement mortar* is: 9. ____

   a. C MORT
   b. CM
   c. CEM MOR
   d. CEM MORT

10. The correct abbreviation for *mixture* is? 10. ____

a. M
b. MIXT
c. MIX
d. MX

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 3 — ELEVATION VIEWS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The correct abbreviation for *gypsum board* is: 1. ____

   a. GB
   b. GP BD
   c. GYP B
   d. GYP BD

2. The correct abbreviation for *waterproof* is: 2. ____

   a. W
   b. WP
   c. WaPr
   d. WPR

3. The correct abbreviation for *concrete* is: 3. ____

   a. CON
   b. CONC
   c. Conc
   d. C

4. The correct abbreviation for *cement asbestos board* is: 4. ____

   a. CA
   b. CAB
   c. CEM AB
   d. CEM ASB

5. The correct abbreviation for *plumbing* is: 5. ____

   a. P
   b. PL
   c. PLMBG
   d. PLBG

6. Elevation views show how the various sides of an object would look from: 6. ____

   a. Directly in front of each side
   b. A point chosen by the architect
   c. Directly in front of the object
   d. Three different points

7. Isometric drawings can be scaled along: 7. ____

   a. All lines
   b. Vertical lines only
   c. Vertical lines and those at 30 degrees to the horizontal
   d. Horizontal lines and those at 30 degrees to the horizontal

8. When the working drawings are being made, the architect draws: 8. ____

   a. Isometric views before plan views
   b. Plan views before elevation views
   c. Elevation views before any other views
   d. Elevation views before plan views

9. If the south elevation of a house were labeled "Front Elevation," then the west elevation would be labeled: 9. _____

a. "Left"
b. "Right"
c. "Front"
d. "Rear"

10. If the right elevation of a house were labeled "West Elevation," then the house would face: 10. _____

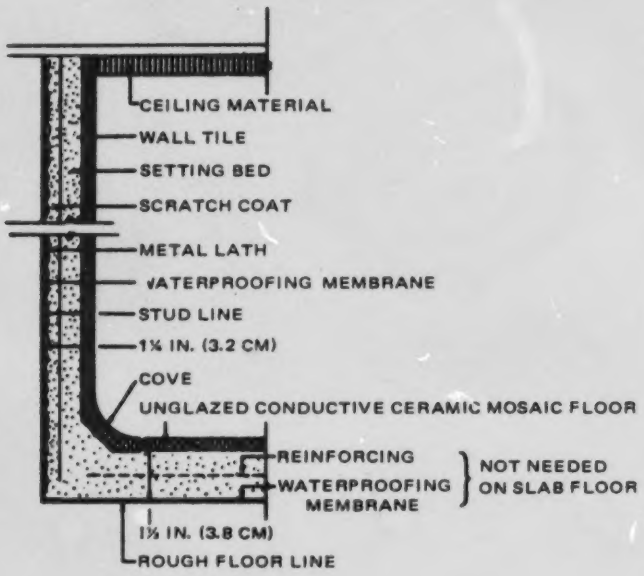
a. East
b. West
c. North
d. South

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 4 — STRUCTURAL DETAILS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

Questions 1 through 4 are based on the following illustration:



1. Which of the following materials is not used on the floor? 1. ____

   a. Ceramic mosaic
   b. Waterproofing membrane
   c. Reinforcing
   d. Metal lath

2. If a slab floor were used, which one of the following would not be needed? 2. ____

   a. Mortar
   b. Trim (cove)
   c. Ceramic mosaic
   d. Waterproofing membrane

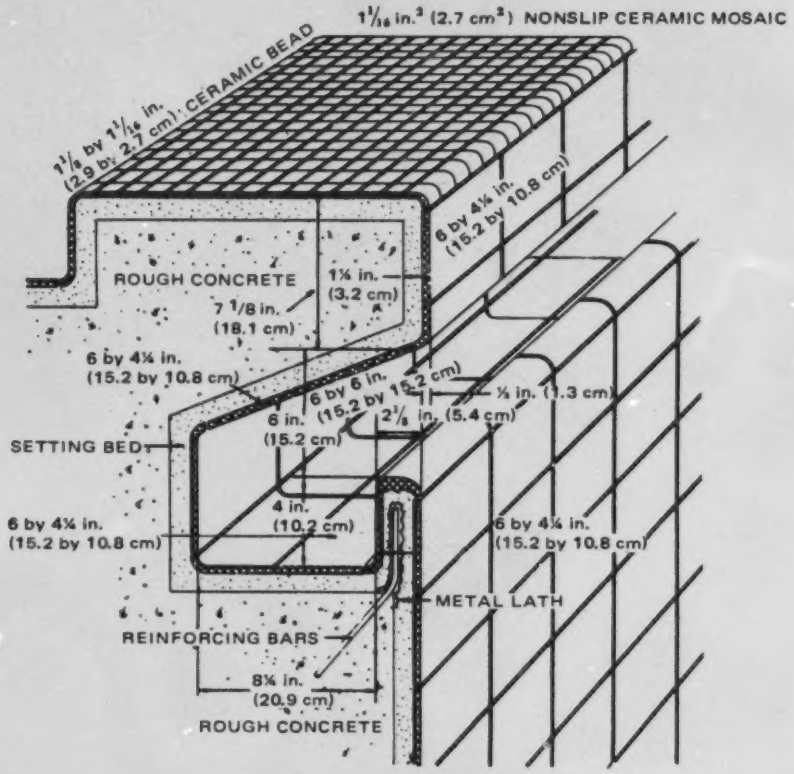
3. What is the distance from the rough floor line to the face of the unglazed ceramic mosaic floor? 3. ____

   a. 1 in. (2.5 cm)
   b. 1¼ in. (3.2 cm)
   c. 1½ in. (3.8 cm)
   d. 1¾ in. (4.4 cm)

4. What is the material in the scratch coat that is used over the waterproof membrane? 4. ____

   a. Metal lath
   b. Ceramic mosaic tile
   c. Wall tile
   d. Concrete

Questions 5 through 9 are based on the following illustration:


1 1/16 in.² (2.7 cm²) NONSLIP CERAMIC MOSAIC
1⅛ by 1 1/16 in. (2.9 by 2.7 cm) CERAMIC BEAD
6 by 4¼ in. (15.2 by 10.8 cm)
ROUGH CONCRETE
1¼ in. (3.2 cm)
7 1/8 in. (18.1 cm)
6 by 4¼ in. (15.2 by 10.8 cm)
6 by 6 in. (15.2 by 15.2 cm)
⅛ in. (1.3 cm)
2⅛ in. (5.4 cm)
6 in. (15.2 cm)
SETTING BED
4 in. (10.2 cm)
6 by 4¼ in. (15.2 by 10.8 cm)
6 by 4¼ in. (15.2 by 10.8 cm)
METAL LATH
REINFORCING BARS
8¼ in. (20.9 cm)
ROUGH CONCRETE

GUTTER DETAIL

5. The foundation is constructed of: 5. ____

a. Mortar and fill
b. Rough concrete
c. Aggregate and sand
d. Reinforced concrete

6. The distance across the bottom of the gutter is: 6. ____

a. 2⅛ in (5.4 cm)
b. 6 in. (15.2 cm)
c. 7⅛ in. (18.1 cm)
d. 8¼ in. (20.9 cm)

7. What size trim is used on the curb of the swimming pool? 7. ____

a. 1 by 1 1/16 in. (2.5 by 2.7 cm)
b. 1⅛ by 1 1/16 in. (2.9 by 2.7 cm)
c. 6 by 4¼ in. (15.2 by 10.8 cm)
d. 6 by 6 in. (15.2 by 15.2 cm)

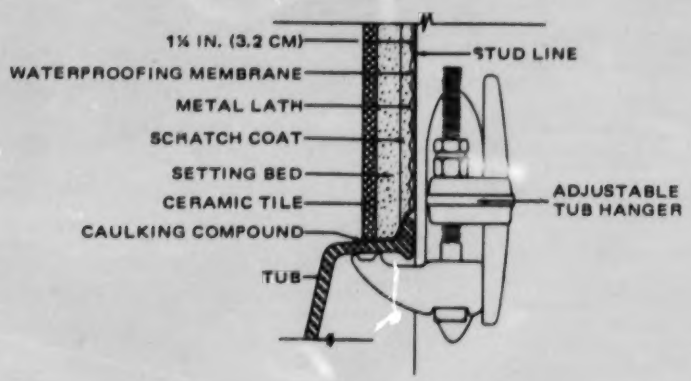
8. Which one of the following materials is not used by the tilesetter in the curb and gutter of the pool? 8. ____

a. Metal lath
b. Reinforcing bars
c. Ceramic mosaic tiles
d. Waterproofing membrane

9. What size cap is used on the gutter of the pool? 9. ____

a. 2⅛ in. (5.4 cm)
b. 4 in. (10.2 cm)
c. 7⅛ in. (18.1 cm)
d. 8¼ in. (20.9 cm)

Questions 10 through 12 are based on the following illustration:



10. What is the material that is used next to the stud line? 10. ____

a. Scratch coat
b. Metal lath
c. Setting bed
d. Waterproofing membrane

11. The setting bed is floated directly over the: 11. ____

a. Metal lath
b. Gypsum board
c. Waterproofing membrane
d. Scratch coat

12. The dimension 1¼ in. (3.2 cm) indicates the distance from the tile to the: 12. ____

a. Metal lath
b. Stud line
c. Scratch coat
d. Setting bed

13. Which one of the following types of drawings is not considered to be a structural detail? 13. ____

a. Roof plan
b. Interior elevation
c. Wall section
d. Floor plan

14. A very common scale used for section views is: 14. ____

a. 1 in. (2.5 cm) = 1 ft. (30.5 cm)
b. ½ in. (1.3 cm) = 1 ft. (30.5 cm)
c. ¼ in. (0.6 cm) = 1 ft. (30.5 cm)
d. 3/32 in. (0.2 cm) = 1 ft. (30.5 cm)

15. A type of detail used extensively for parts of a kitchen is the: 15. ____

a. Floor plan
b. Framing plan
c. Interior elevation
d. Trim details

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 5 — GEOMETRICAL CONSTRUCTION

To complete the problems in this test, you will need a straightedge, compass, and protractor.

1. Draw a line perpendicular to AB.

A _____ B

Accuracy 0 1 2 3 4 5 6 7 8 9 10 ____

Neatness 0 1 2 3 4 5 6 7 8 9 10 ____

Time 0 1 2 3 4 5 ____

Total_____

2. Divide line CD into four equal parts.

C _____ D

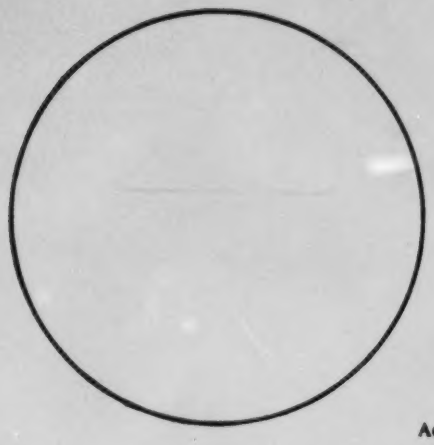
Accuracy 0 1 2 3 4 5 6 7 8 9 10 ____

Neatness 0 1 2 3 4 5 6 7 8 9 10 ____

Time 0 1 2 3 4 5 ____

Total_____

3. Locate the center of the circle below.



Accuracy 0 1 2 3 4 5 6 7 8 9 10 ____

Neatness 0 1 2 3 4 5 6 7 8 9 10 ____

Time 0 1 2 3 4 5 ____

Total_____

4. Starting with a 2½-in. (6.4-cm) square, lay out an octagon within it.

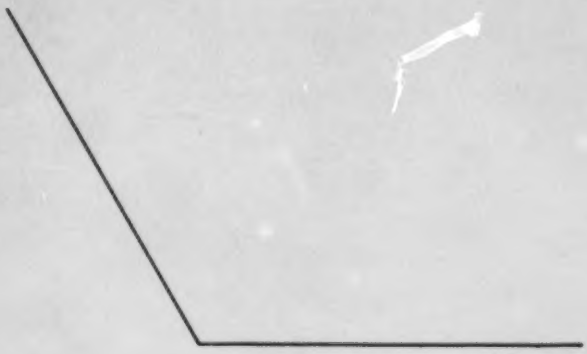
Accuracy 0 1 2 3 4 5 6 7 8 9 10 ____

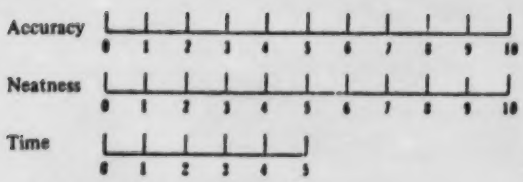
Neatness 0 1 2 3 4 5 6 7 8 9 10 ____

Time 0 1 2 3 4 5 ____

Total_____

5. Bisect the angle below.





Total_____

Total for test_____

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 6 — SQUARES AND SQUARE ROOTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Find the square root of 5,776. 1. ____

a. 74
b. 76
c. 84
d. 86

2. Find the square root of 2,209. 2. ____

a. 43
b. 47
c. 53
d. 57

3. Find the square root of 784. 3. ____

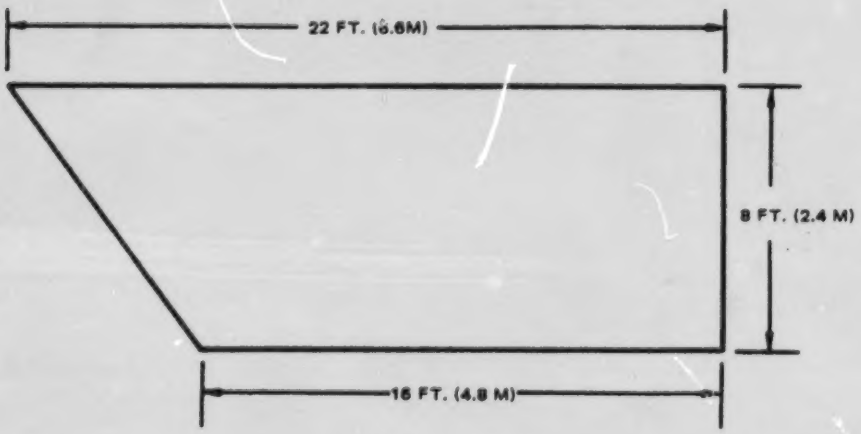
a. 28
b. 32
c. 38
d. 42

4. Find the square root of 45,369. 4. ____

a. 213
b. 217
c. 223
d. 227

5. How many linear feet of border are required in the vestibule shown below? 5. ____

a. 44 ft. (13.2 m)
b. 46 ft. (13.8 m)
c. 54 ft. (16.2 m)
d. 56 ft. (16.8 m)



6. Find the square root of 133,225. 6. ____

a. 325
b. 355
c. 365
d. 375

7. Find the value of $(2.61)^2$. 7. ____

a. 4.72
b. 6.81
c. 7.72
d. 8.81

8. Find the value of $(\frac{2}{5})^2 + (\frac{2}{5})^2$. 8. ____

a. $\frac{4}{5}$
b. $\frac{3}{10}$
c. $\frac{4}{25}$
d.

9. Find the value of (15 ft. 6 in.)^2 + (20 ft. 6 in.)^2 [(4.7 m)^2 + (6.2 m)^2]. 9. ____

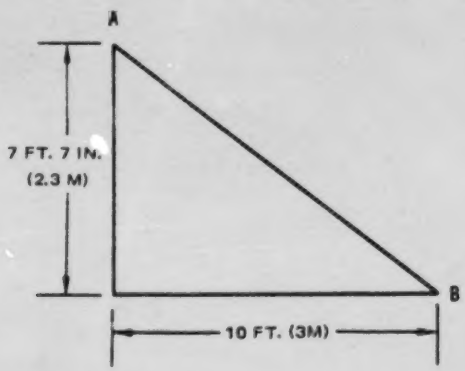
a. 600 ft.^{2} 1 in.^{2} (54.1 m^2)
b. 660 ft.^{2} 72 in.^{2} (59.4 m^2)
c. 760 ft.^{2} 6 in.^{2} (68.5 m^2)
d. 800 ft.^{2} 1 in.^{2} (72.1 m^2)

10. Find the value of (30½ ft.)^2 + (20½ ft.)^2 [(2.8 m)^2 + (1.9 m)^2]. 10. ____

a. 1,350½ ft.^{2} (121.6 m^2)
b. 1,260¼ ft.^{2} (113.4 m^2)
c. 1,130¼ ft.^{2} (101.7 m^2)
d. 1,050½ ft.^{2} (94.6 m^2)

11. The drawing below represents the outline shape of a stairway that is to be set in a tiled wall. A chalk line is to be run from point A to point B. Field tile is to be set on the wall from this line. For estimating purposes, how long would this line be? 11. ____

a. 14 ft. 6 in. (4.4 m)
b. 13 ft. 6 in. (4.1 m)
c. 12 ft. 6 in. (3.8 m)
d. 11 ft. 6 in. (3.5 m)



12. Find the value of $(10\frac{2}{3})^2 - (5\frac{1}{3})^2$. 12. ____

a. $58\frac{2}{3}$
b. $75\frac{1}{3}$
c. $85\frac{1}{3}$
d. $94\frac{2}{3}$

13. Find the square root of 595.36. 13. ____

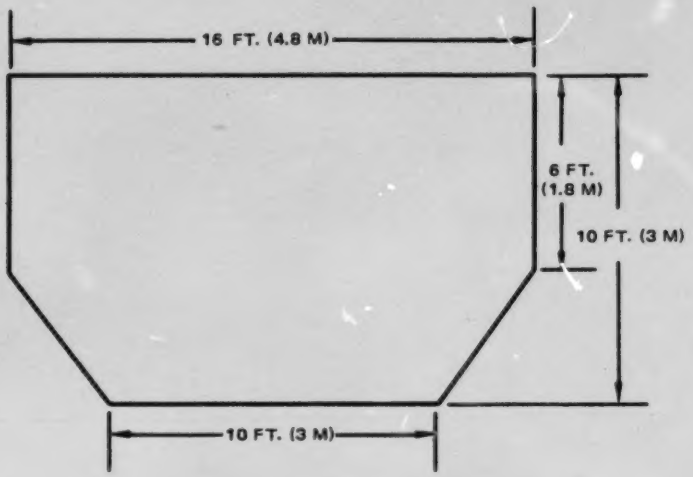
a. 7.71
b. 24.4
c. 73.6
d. 232.6

14. Find the value of $(4\frac{1}{4})^2 - (2\frac{1}{2})^2$. 14. ____

a. $3\frac{1}{8}$
b. $11\frac{5}{8}$
c. $11\frac{13}{16}$
d. 22

15. The drawing below represents the outline of a patio that is to have a 6 by 9 in. (15.2 by 22.9 cm) soldier course border. How many linear feet of perimeter will be used as a basis for estimating the tile needed for the border? 15. ____

a. 39 ft. (11.7 m)
b. 42 ft. (12.6 m)
c. 44 ft. (13.2 m)
d. 48 ft. (14.4 m)



UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 7 — SPECIFICATIONS AND CONTRACTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Specifications are necessary for the construction of a building so that: 1. ____

   a. Quantities of materials needed can be itemized.
   b. Material supply houses can order the correct items.
   c. Builders can bid on the job without needing actual plans.
   d. All those estimating the job will bid on the same thing.

2. Specifications fulfill which one of the following functions? 2. ____

   a. Supplement the building code.
   b. Correct errors in the plans.
   c. Specify terms of payment to the contractor.
   d. Help guide all subcontractors in completing their projects.

3. Specifications serve to: 3. ____

   a. Provide the estimator with a mental picture of the construction.
   b. Set a pattern for the bill of materials.
   c. Prevent disputes among contractor, home owner, and subcontractor.
   d. Guide the architect in drawing up plans.

4. Specifications are legal and binding: 4. ____

   a. Only on residential construction
   b. Only on large buildings
   c. On all types of construction
   d. Whenever so specified by the owner

5. The minimum number of sets of plans and specifications usually required where a loan commitment is anticipated is: 5. ____

   a. Three
   b. Five
   c. Seven
   d. Nine

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 8 — MATERIAL ESTIMATING

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. How many cubic yards of sand are needed for a 1-in.-thick (2.5-cm-thick) mortar bed on a 20 by 20 ft. (6 by 6 m) wall? 1. ____

   a. 1.23 yd.^{3} (0.9 m^3)
   b. 1.50 yd.^{3} (1.1 m^3)
   c. 2.23 yd.^{3} (1.7 m^3)
   d. 2.32 yd.^{3} (1.8 m^3)

2. The surface area of a ceiling is calculated in: 2. ____

   a. Square inches
   b. Square feet
   c. Cubic feet
   d. Cubic yards

3. The surface area of a wall 10 by 30 ft. (3 by 9 m) is: 3. ____

   a. 30 yd.^{2} (24 m^2)
   b. 300 ft.^{2} (27 m^2)
   c. 330 ft.^{2} (30 m^2)
   d. 3,000 ft.^{2} (270 m^2)

4. The surface area of a floor 25 by 10 ft. (7.5 by 3 m) is: 4. ____

   a. 150 ft.^{2} (13.5 m^2)
   b. 150 ft.^{3} (4.5 m^3)
   c. 250 ft..^{2} (22.5 m^2)
   d. 250 ft.^{3} (7.5 m^3)

5. How much trim is needed for a 15 ft. 6 in. by 20 ft. 6 in. (4.7 by 6.2 m) room with a 5-ft.-wide (1.5-m-wide) door? 5. ____

   a. 55 ft. (16.5 m)
   b. 57 ft. (17.1 m)
   c. 65 ft. (19.5 m)
   d. 67 ft. (20.1 m)

6. To determine the cubic yards of sand needed for a room, the tilesetter divides the number of cubic feet of sand needed by: 6. ____

   a. 10
   b. 15
   c. 27
   d. 37

7. To scale prints for quantities of tile and other material needed for a wall job, the tilesetter: 7. ____

   a. Follows a set procedure
   b. Measures long wall lengths first
   c. Measures short wall lengths first
   d. Takes measurements at random

8. To which of the following does the tilesetter refer for material estimating? 8. ____

   a. Room schedule
   b. Details
   c. Grade specification
   d. Work schedule

9. A tilesetter estimates the quantity of floor border needed for a room by measuring the perimeter of the room, beginning from one corner and ending at the: 9. ____

a. Right corner
b. Left corner
c. Same corner
d. Opposite corner

10. The tilesetter refers to which one of the following to determine who furnishes the accessories and who sets them? 10. ____

a. Room schedule
b. Specifications
c. Details
d. Contractor's manual

11. The tilesetter refers to which one of the following to determine the height of the wainscot? 11. ____

a. Specifications
b. Room schedule
c. Floor plan
d. Contractor's manual

12. What unit of measure is most commonly used to estimate the quantity of lime needed? 12. ____

a. The cubic inch
b. The cubic foot
c. A unit of 6 ft.^{3} (0.2 m^3)
d. The cubic yard

13. Special materials, such as additives, required for a job can be found in the: 13. ____

a. Specifications
b. Details
c. Room schedule
d. Handbook

14. To determine the quantity of cement needed for an 18 ft. 7 in. by 4 ft. 1 in. (5.6 by 1.2 m) room, the tilesetter divides the number of cubic feet (cubic metres) of sand needed by (Use the ratio of 1 part cement to 5 parts sand.): 14. ____

a. 1
b. 4½
c. 5
d. 6

15. Cement comes in sacks of: 15. ____

a. ½ ft.^{3} (0.02 m^3)
b. 1 ft.^{3} (0.03 m^3)
c. 1½ ft.^{3} (0.05 m^3)
d. 3 ft.^{3} (0.09 m^3)

16. To determine the sacks of lime needed for a 20 by 11 ft. (6 by 3.3 m) room, the tilesetter divides the number of cubic feet of sand needed by (Use the ratio of 1 part lime to 10 parts sand.): 16. ____

a. 4½
b. 5
c. 6
d. 10

17. What unit of measure is most commonly used to estimate the quantity of sand needed? 17. ____

a. The cubic inch
b. The cubic foot
c. The square yard
d. The cubic yard

18. A tilesetter can determine the quantity of base and cap needed for a tile job in a room by figuring the: 18. ____

a. Perimeter of the room
b. Total width of the room
c. Width plus length of the room
d. Total length of the room

19. How many square feet are to be tiled on a wall 18 ft. (5.4 m) long and 8 ft. (2.4 m) high and in which is a door 6 ft. 6 in. by 4 ft. (2 by 1.2 m)? 19. ____

a. 26 ft.^{2} (2.3 m^2)
b. 118 ft.^{2} (10.6 m^2)
c. 128 ft.^{2} (11.5 m^2)
d. 144 ft.^{2} (13 m^2)

20. The surface area of a floor that is 15 ft. (4.5 m) long and 10 ft. (3 m) wide is: 20. ____

a. 50 ft.^{2} (4.5 m^2)
b. 150 ft.^{2} (13.5 m^2)
c. 155 ft.^{2} (14. m^2)
d. 159 ft.^{2} (14.3 m^2)

UNIT C — BLUEPRINTS AND SPECIFICATIONS

TOPIC 9 — LARGE COMMERCIAL PROJECTS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Tilework usually is included in what division of the blueprints? 1. ____

   a. Plumbing
   b. Structural
   c. Electrical
   d. Architectural

2. The shape of a room would be found on the: 2. ____

   a. Floor plans
   b. Title page
   c. Details
   d. Room finish schedule

3. To determine whether tile is to be used on the floor of a room, the tilesetter should study the: 3. ____

   a. Title page
   b. Floor plans
   c. Interior elevations
   d. Room finish schedule

4. To find a detail on a large set of prints, the tilesetter should first check the: 4. ____

   a. Floor plans
   b. Title page
   c. Room finish schedule
   d. Interior elevations

5. To determine whether tile or plaster will be used on a ceiling, the tilesetter should review the: 5. ____

   a. Floor plans
   b. Title page
   c. Details
   d. Room finish schedule

6. On a detail notation symbol, the lower number represents the: 6. ____

   a. Number of the page on which the detail is illustrated
   b. Number of the detail
   c. Room number
   d. Width of room

7. To find the location of the floor drains in a shower room, the tilesetter should study the: 7. ____

   a. Title page
   b. Floor plans
   c. Room finish schedule
   d. Details

8. To discover how high the tile installation is to be on the wall of a room, the tilesetter should check the: 8. ____

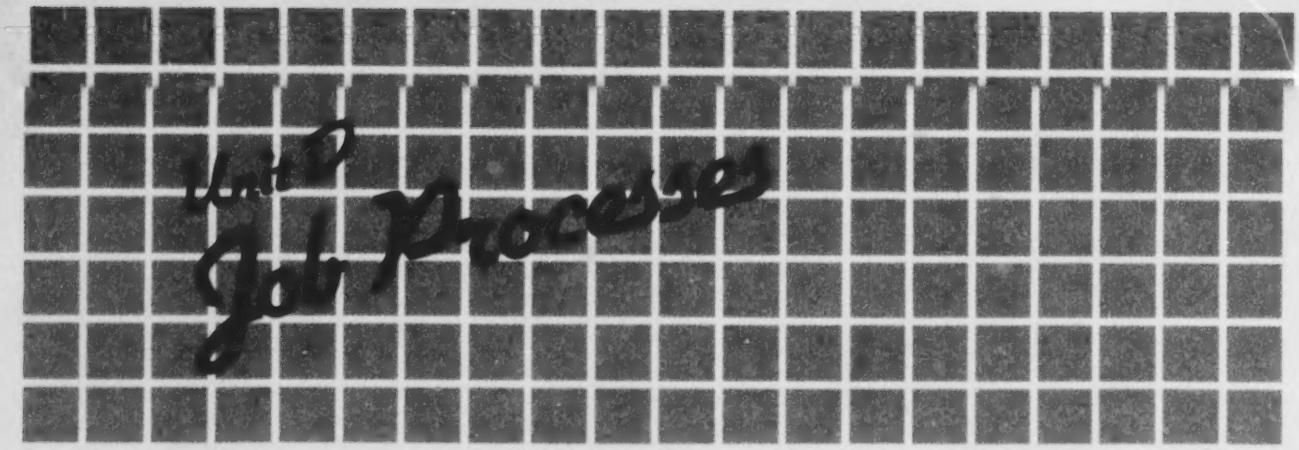
   a. Title page
   b. Floor plans
   c. Room finish schedule
   d. Details

9. The finished appearance of a tile installation should be shown on the: 9. ____

a. *Title page*
b. Floor plans
c. *Interior elevations*
d. Room finish schedule

10. To determine the extent of the tile to be used in a room, the tilesetter should study the details and: 10. ____

a. Read the handbook.
b. Consult with the owner.
c. Review the title page.
d. Measure the tile.



TOPIC 1 — TILE LAYOUT

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. If in centering tile on a walk the tilesetters discover that the pieces on the ends of a course must be cut to less than half size, they should: 1. ____

   a. Shift the tiles so that a full-size piece is at one end, and only the piece at the other end needs cutting.
   b. Use a smaller tile at the center.
   c. Use a larger tile at the center.
   d. Shift one of the two center pieces so it is in the exact center, and then both end pieces will be larger cuts.

2. In laying diagonal tiles, the tilesetters should make an adjustment in the layout if the diagonal pieces at the border are smaller than: 2. ____

   a. ¾ in. (1.9 cm)
   b. 1½ in. (3.8 cm)
   c. 2⅛ in. (5.4 cm)
   d. 4½ in. (11.4 cm)

3. When setting a swirl pattern in place, the tilesetter should: 3. ____

   a. Use only full-size tiles.
   b. Cut the first two tiles.
   c. Cut the last two tiles.
   d. Cut the first and last tiles.

4. The layer of pure cement that is troweled over the setting bed under tile trim should have a maximum thickness of: 4. ____

   a. 1/16 in. (0.2 cm)
   b. ⅛ in. (0.3 cm)
   c. ¼ in. (0.6 cm)
   d. ½ in. (1.3 cm)

5. When tiles are to be set on two walls that run from an outside corner, the work is begun at the outside corner with what size tiles? 5. ____

   a. Quarter
   b. Half
   c. Three-quarter
   d. Full

6. Which of the following methods of setting sculptured tile at an internal corner is considered the least desirable method? 6. ____

a. The plain tiles are used as cuts at the corners.
b. The sculptured tiles are coped to fit.
c. A box cap is inserted at the corner to receive the cut.
d. The sculptured tiles are mitered.

7. To correct the overlap of decorative tile with a continuous pattern, the tilesetter should first try: 7. ____

a. Spreading the joints
b. Cutting every other tile in the continuous pattern
c. Disregarding the pattern at the end of the wall
d. Cutting a closure in the last two tiles

8. When decorative tile with a continuous pattern is set on the wall, the piece cut off from the previous wall is: 8. ____

a. Discarded
b. Used as a center cut
c. Used as an end cut
d. Used on the adjoining wall

9. The trim always should be set on: 9. ____

a. Plaster
b. Pure cement
c. Setting mortar
d. Tile grout

10. What should be laid out first when tiles are to be set on horizontal surfaces? 10. ____

a. Continuous patterns
b. Borders
c. Four-point halves
d. Diagonal halves

UNIT D — JOB PROCESSES

TOPIC 2 — PREPARATION OF VERTICAL SURFACES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The dash coat used on concrete walls under tile should consist of one part portland cement to how many parts graded sharp fine sand? 1. ____

   a. One
   b. One and one-half
   c. Two
   d. Two and one-half

2. To prepare studs for tile installation, the tilesetter should overlap the waterproof paper a minimum of: 2. ____

   a. 2 in. (5.1 cm)
   b. 4 in. (10.2 cm)
   c. 6 in. (15.2 cm)
   d. 8 in. (20.3 cm)

3. The maximum spacing allowed for control joints in concrete surfaces on which an exterior tile installation will be made is: 3. ____

   a. 10 ft. (3 m)
   b. 16 ft. (5 m)
   c. 20 ft. (6 m)
   d. 30 ft. (9 m)

4. To prepare a gypsum plaster surface for a tile installation with dry-set portland cement bond coat, the tilesetter will need waterproof paper, metal lath, and: 4. ____

   a. Organic adhesive
   b. Shrinkage mesh
   c. Reinforcing wire
   d. Portland cement mortar

5. Which of the following is used with waterproof paper as backing for tile? 5. ____

   a. Reinforcing wire
   b. Tie wire
   c. Organic adhesive
   d. Portland cement mortar

6. When metal lath is applied over wood, the lath should overlap a minimum of: 6. ____

   a. ½ in. (1.3 cm)
   b. 2 in. (5.1 cm)
   c. 4 in. (10.2 cm)
   d. 6 in. (15.2 cm)

7. The recommended setting bed for tile applied over wood by the conventional method should be no thinner than: 7. ____

   a. ⅛ in. (0.3 cm)
   b. ⅜ in. (1.0 cm)
   c. ¾ in. (1.9 cm)
   d. 1 in. (2.5 cm)

8. Applying tile directly to wood by means of a thin-set portland cement mortar with no base material between is not recommended, because: 8. ____

   a. Mortar dries out too fast.
   b. Wood tends to move, and the tile may shear off.
   c. Mortar will not adhere to wood.
   d. Wood absorbs all the mortar.

9. On which of the following types of walls should organic adhesives never be used for tile installations? 9. ____

a. Exterior concrete
b. Interior concrete
c. Wood
d. Gypsum plaster

10. Dead cement on concrete is considered: 10. ____

a. A well-cured cement
b. Detrimental to a bond
c. An additive to mortar
d. Cement that has been left in a bag too long

UNIT D — JOB PROCESSES

TOPIC 3 — SETTING TILE ON VERTICAL SURFACES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. How long may tiles be out of water before they are set? 1. ____

   a. 5 min.
   b. 10 min.
   c. 15 min.
   d. 30 min.

2. Before tiles are applied, they should be soaked a minimum of: 2. ____

   a. 5 min.
   b. 10 min.
   c. 20 min.
   d. 30 min.

3. Adding water and remixing mortar will tend to cause mortar to: 3. ____

   a. Lose strength.
   b. Gain strength.
   c. Separate.
   d. Become light in color.

4. The pure coat should be applied to a maximum thickness of: 4. ____

   a. 1/16 in. (0.2 cm)
   b. ¼ in. (0.6 cm)
   c. ½ in. (1.3 cm)
   d. 1 in. (2.5 cm)

5. The setting bed should be cut to the scratch coat with a pointing trowel every how many rows? 5. ____

   a. Two
   b. Four
   c. Six
   d. Eight

6. The leveling coat is also known as a: 6. ____

   a. Smooth coat
   b. Float coat
   c. Plumb coat
   d. Scratch coat

7. After the first row of tile is applied, the tilesetter should proceed with not more than how many rows at a time? 7. ____

   a. Three
   b. Four
   c. Five
   d. Six

8. Ceramic tile should be bonded to glass fiber reinforced board with: 8. ____

   a. Cement mortar
   b. Latex portland cement mortar
   c. Epoxy resin
   d. Organic adhesive

9. After filling the voids where wood screeds are removed, excessive mortar is struck off the vertical surface with a straightedge not less than how long? 9. ____

   a. 12 in. (30.5 cm)
   b. 15 in. (38.1 cm)
   c. 18 in. (45.7 cm)
   d. 24 in. (61 cm)

10. The mortar setting bed is also known as a: 10. ____

a. Plumb coat
b. Scratch coat
c. Float coat
d. Dash coat

UNIT D — JOB PROCESSES

TOPIC 4 — PREPARATION OF HORIZONTAL SURFACES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Shrinkage mesh is lapped a minimum of how much? 1. ____

   a. One mesh
   b. Two meshes
   c. Three meshes
   d. Four meshes

2. What should be applied to a concrete surface immediately before it receives the mortar setting bed? 2. ____

   a. Scratch coat
   b. Shrinkage mesh
   c. Water and cement
   d. Epoxy resin

3. What should be used on steel plate to form a bond with the mortar setting bed? 3. ____

   a. Building paper
   b. Portland cement
   c. Epoxy resin
   d. Shrinkage mesh

4. Where fill is required to bring the floor level to the proper grade to receive the mortar bed, the recommended fill is: 4. ____

   a. 1 part portland cement, 3 parts sand, and 4 parts coarse aggregate
   b. 2½ parts portland cement, 1 part sand, and 5 parts coarse aggregate
   c. 2½ parts portland cement, 5 parts sand, and 1 part coarse aggregate
   d. 5 parts portland cement, 1 part sand, and 2½ parts coarse aggregate

5. Shrinkage mesh over concrete is laced with tie wire of how much spacing on centers? 5. ____

   a. 6 in. (15.2 cm)
   b. 12 in. (30.5 cm)
   c. 18 in. (45.7 cm)
   d. 24 in. (61 cm)

6. How much should shrinkage mesh be turned up at its junction with vertical walls? 6. ____

   a. None
   b. 1 in. (2.5 cm)
   c. 2 in. (5.1 cm)
   d. 3 in. (7.6 cm)

7. How should building paper be applied over a horizontal wood surface? 7. ____

   a. It should be cut to exact size of surface and fastened.
   b. It should be cut to exact size of surface and left unfastened.
   c. It should be cut so ends and sides lap 3 in. (7.6 cm) and fastened.
   d. It should be cut so ends and sides lap 3 in. (7.6 cm) and left unfastened.

8. Steel plates should be clean and free from: 8. ____

   a. Clear water
   b. Joints
   c. Loose rust
   d. Holes

9. What is used to ensure stability of concrete fill over the structural subfloor? 9. ____

a. Dry sand
b. Shrinkage mesh
c. Reinforcing steel
d. Building paper

10. If glass fiber reinforced board is to be used as a surface for tile: 10. ____

a. The supporting base must be concrete.
b. The subfloor must be nailed every 8 to 10 in. (20 to 25 cm) around the perimeter.
c. The subfloor should be nailed at several points around the perimeter.
d. The subfloor must be structurally sound and well supported.

UNIT D — JOB PROCESSES

TOPIC 5 — SETTING TILE ON HORIZONTAL SURFACES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The layer of pure cement that is dusted on the setting bed before the tile is set should have a maximum thickness of: 1. ____

   a. 1/16 in. (0.2 cm)
   b. 1/8 in. (0.3 cm)
   c. 1/4 in. (0.6 cm)
   d. 3/8 in. (1.0 cm)

2. The setting bed mix should consist of one part portland cement and how many parts sand? 2. ____

   a. Three to four
   b. Four to five
   c. Five to six
   d. Six to seven

3. On level subfloors the setting bed should be not less than how thick? 3. ____

   a. 1/2 in. (1.3 cm)
   b. 1 in. (2.5 cm)
   c. 1 1/2 in. (3.8 cm)
   d. 2 in. (5.1 cm)

4. What material is used to keep sulfamic acid from destroying the finish on metal? 4. ____

   a. Paper tape
   b. Motor oil
   c. Liquid soap
   d. Vaseline

5. How many hours should be allowed for curing thin-set bonding mortars? 5. ____

   a. 12
   b. 24
   c. 36
   d. 72

6. After sulfamic acid is used to clean tile, what material is used to remove the acid salts? 6. ____

   a. Clean water
   b. Soda solution
   c. Lime water
   d. Liquid soap

7. In laying the setting bed, what does the tilesetter use to ensure exact slopes as required by the drawings? 7. ____

   a. A wood float
   b. A spirit level
   c. Screed strips
   d. A plumb bob

8. What type of building paper should be applied over newly laid floors to help curing? 8. ____

   a. Breather paper
   b. Laminated and reinforced kraft paper
   c. Resin-coated paper
   d. Bituminous saturated felt paper

9. The polyethylene sheeting or paper used to cure tiled floors should be lapped not less than: 9. ____

a. 2 in. (5.1 cm)
b. 4 in. (10.2 cm)
c. 5 in. (12.7 cm)
d. 6 in. (15.2 cm)

10. The tiles are placed on the setting bed: 10. ____

a. After it has dried
b. After it has been scratched
c. While it is still plastic
d. As soon as the mortar has been retempered

UNIT D — JOB PROCESSES

TOPIC 6 — CLEANING AND PROTECTING CERAMIC TILE AFTER INSTALLATION

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Regarding the maintenance of tile after installation, tilesetters should: 1. ____

   a. Refer any questions to the building contractor.
   b. Be prepared with recommendations for cleaning and maintenance.
   c. Recommend the use of common household detergents only.
   d. Recommend the use of a sealer once every six months.

2. After cleaning newly installed tile, the surface should be: 2. ____

   a. Sealed with a household sealer
   b. Waxed and polished
   c. Polish-dried with a towel rag
   d. Polished with a cloth that has been dampened with glass-cleaning liquid

3. Acid-type cleaning liquids: 3. ____

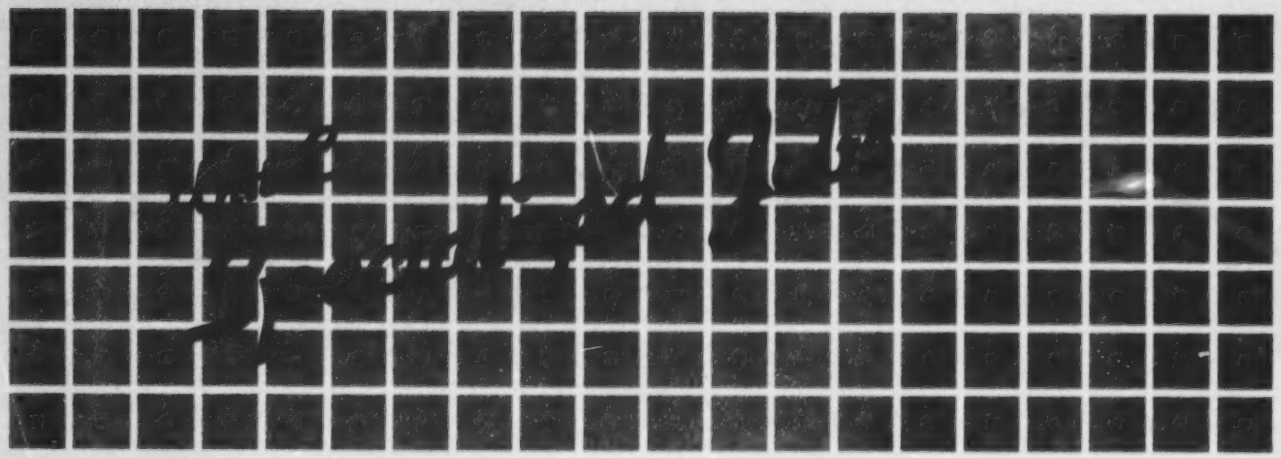
   a. Should be used once a month on all tile
   b. Are not recommended for tile and grout
   c. Should be brushed into the grout
   d. Will restore discolored grout

4. Grout should be maintained by: 4. ____

   a. Scrubbing with brush
   b. Brushing with detergent and water
   c. Cleaning as one solid surface with the tile
   d. Wiping with scouring powder and damp cloth

5. To maintain tiled surfaces, one should do the following: 5. ____

   a. Use scouring powder and brush.
   b. Clean surface with a bleach solution.
   c. Wipe daily with damp cloth or sponge.
   d. Brush once a week with ammonia and water solution.



TOPIC 1 — TILE FLOORS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Spots of mortar on a large floor are set level by use of: 1. ____

   a. Two wood strips
   b. A row of tile
   c. A straightedge
   d. A water level

2. Which one of the following tools is preferred by tilesetters as an aid in erecting perpendicular lines in connection with laying tile floors? 2. ____

   a. Straightedge
   b. Story pole
   c. Trammel bar
   d. Framing square

3. When a quarry tile floor is set without legs, the tilesetter works within areas that are set how far apart? 3. ____

   a. Two rows
   b. Three rows
   c. Four rows
   d. Five rows

4. When a floor is set without legs, the chalk line is generally placed parallel to the longest wall and how far from it? 4. ____

   a. One tile
   b. Two tiles
   c. Three tiles
   d. Four tiles

5. To lay a ceramic tile floor, the tilesetter starts at the: 5. ____

   a. Outside wall
   b. Intersection of two longest walls
   c. Floor drain
   d. Center of room

6. Tiles are beaten in with a flat block to: 6. ____

   a. Bring water to the surface.
   b. Level the mortar.
   c. Level the tiles.
   d. Bond and level the tiles.

7. To determine the depth of float, the tilesetter should use a: 7. ____

a. Small test section
b. Screed
c. Water level
d. Wood float

8. When floor mortar is floated, it is tamped firmly to prevent: 8. ____

a. High spots
b. Cracks
c. Ridges
d. Hollow spots

9. Mortar for mosaic tiles should be cement-dusted: 9. ____

a. Not at all
b. Lightly
c. Heavily
d. Along the edges only

10. After the floor is floated, the tilesetter removes the float strips and fills the void with: 10. ____

a. Grout
b. Sand and cement
c. Dry pure
d. Mortar

UNIT E — SPECIALIZED JOBS

TOPIC 2 — STEAM ROOMS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Before tiles are installed in a steam room, the tilesetter should ensure that the wood studs and ceiling joists are: 1. ____

   a. Insulated
   b. Coated with waterproof paint
   c. Fireproofed
   d. Hot-mopped

2. The interior of a steam room should be water resistant because of its: 2. ____

   a. High moisture content
   b. Acid content
   c. Alkali content
   d. Exposure to heat

3. To prevent the dripping of condensed moisture, the tilesetter should ensure that the ceiling of the steam room is: 3. ____

   a. Pitched
   b. Groined
   c. Convex
   d. Concave

4. The ceiling of a steam room is laid on top of the wall tile to allow for its possible: 4. ____

   a. Leakage
   b. Expansion
   c. Compression
   d. Venting

5. In a wall installation the control (expansion) joints should extend: 5. ____

   a. Through the grout
   b. Through the backing
   c. Through the tile
   d. Through the mortar

6. Benches in a steam room should have a good slope to allow for: 6. ____

   a. Drainage
   b. Comfort
   c. Expansion
   d. Expansion and contraction

7. What is used to attach the reinforcing wire to hot-mopped wall surfaces? 7. ____

   a. Wire staples
   b. Furring nails
   c. Wire pigtails
   d. Braces

8. How should the floor in a steam room be laid? 8. ____

   a. With extra wide joints
   b. Sloped toward the door
   c. Perfectly level
   d. Sloped toward the drain

9. The joint between the floor and the walls should be sealed with: 9. ____

   a. Monel metal
   b. Caulking compound
   c. Oakum
   d. Plastic sealer

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10. Steam rooms usually are located in: 10. ____

a. Cafeterias
b. Breweries
c. Hospitals
d. Athletic clubs

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UNIT E — SPECIALIZED JOBS

TOPIC 3 — CEILINGS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Mortar correctly applied to a ceiling is floated: 1. ____

   a. In thin coats, each firmly pressed to the preceding coat
   b. In a very rich mixture
   c. In one heavy coat
   d. In one light coat

2. When a ceiling is floated in two coats, how long should the tilesetter wait before applying the second coat? 2. ____

   a. No more than 10 minutes
   b. No more than 30 minutes
   c. Overnight
   d. Several days

3. Glazed tile for ceiling work should be: 3. ____

   a. Dipped into water for a few seconds
   b. Allowed to soak at least 30 minutes
   c. Allowed to soak at least 60 minutes
   d. Soaked overnight

4. The correct thickness for the pure coat is: 4. ____

   a. $\frac{1}{16}$ in. (0.2 cm)
   b. $\frac{1}{8}$ in. (0.3 cm)
   c. $\frac{3}{16}$ in. (0.5 cm)
   d. $\frac{1}{4}$ in. (0.6 cm)

5. In what condition should glazed wall tiles be before they are applied to a ceiling? 5. ____

   a. Thoroughly soaked but free of excess water
   b. Soaked 30 minutes
   c. Thoroughly soaked and as wet as possible
   d. Thoroughly soaked and left to drain until completely dry

6. The adjusting of tiles after they have been applied to the ceiling may: 6. ____

   a. Make cleaning difficult.
   b. Result in an uneven ceiling.
   c. Break the bond.
   d. Fill the joints with excess pure cement.

7. Which one of the following statements is correct with respect to the cleaning of a ceiling after the tiles are set? 7. ____

   a. Tile should be wiped with a dry cloth.
   b. Tile should be cleaned with a minimum of water.
   c. Tile should be left for a day before cleaning.
   d. Water should not be used in cleaning.

8. When is the best time to grout a ceiling? 8. ____

a. As soon as the tiles are set
b. Three hours after the tiles are set
c. One day after the tiles are set
d. Several days after the tiles are set

9. The chief difference between applying tile on a ceiling and applying it elsewhere is that: 9. ____

a. Water is constantly being drawn to the surface of the mortar.
b. Only a few types of tile may be used.
c. The tilesetter must work at an awkward angle.
d. Obtaining a good bond is more difficult, because tapping and beating are not effective.

10. If control joints are to be used in a ceiling installation, when should they be filled with caulking compound? 10. ____

a. As work progresses
b. Before tile is laid
c. After work is completed
d. After curing for three days

UNIT E — SPECIALIZED JOBS

TOPIC 4 — GLASS AND MARBLE MOSAICS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. On certain jobs the mosaic must be applied by starting at the centerline and working: 1. ____

   a. Up
   b. Down
   c. Both ways
   d. At an angle

2. Which one of the following mixes is used for the buttering mortar for smalti and marble mosaics? 2. ____

   a. Fine sand, cement, and lime
   b. Fine sand and cement
   c. Pure cement and water
   d. Lime, sand, and water

3. Before setting the sheets of tile, the tilesetter should apply a thin coat of pure cement to the: 3. ____

   a. Back of the sheets
   b. Tiles
   c. Paper side
   d. Setting bed

4. Desired variations in preparing the setting bed are attained by: 4. ____

   a. Applying the scratch coat first
   b. Applying two thin coats of cement
   c. Freehand floating
   d. Using float strips

5. The sheets of glass mosaic are tapped lightly to the surface that has been coated with: 5. ____

   a. Plastic adhesive
   b. Pure cement
   c. Type III portland cement
   d. Silica sand

6. After ten or more sheets have been laid, the tilesetter usually begins to wet the: 6. ____

   a. Adjacent setting bed
   b. Joints and edges
   c. Mosaics
   d. Sheets of paper

7. During the troweling process the thickest stone of the sheet is used as the: 7. ____

   a. Center marker
   b. Starting point
   c. Thickness gauge
   d. Design keystone

8. Sheets of mosaic tiles are lifted by grasping each sheet at the: 8. ____

   a. Outer edges
   b. Opposite corners
   c. Red paper tabs
   d. Scored edges

9. What should be used to clean mosaic tilework? 9. ____

a. Fine sand and water
b. Detergent solution
c. Light acid solution
d. Abrasive paper

10. The sheets of tile are placed in position in accordance with the: 10. ____

a. Line drawing
b. Owner's drawing
c. Tilesetter's sketch
d. Master plan

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UNIT E — SPECIALIZED JOBS

TOPIC 5 — CERAMIC VENEER

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Because of the porosity of ceramic veneer, it must be thoroughly: 1. ____

   a. Soaked in a special solution
   b. Bonded with mortar
   c. Soaked in water
   d. Mixed with mastic

2. The story pole is used on the setting bed when the tilesetter must scribe: 2. ____

   a. Circles
   b. Lines
   c. Hexagons
   d. Curves

3. In layout, joint sizes usually are transferred to a long strip of: 3. ____

   a. Plastic
   b. Paper
   c. Wood
   d. Metal

4. Ceramic veneer requires careful layout, because the tilesetter must allow for: 4. ____

   a. Fixed points
   b. Complex patterns
   c. Uneven floors
   d. Numerous joints

5. The thickness of the setting bed must be carefully planned by the tilesetter to allow for the: 5. ____

   a. Thickness of the tile
   b. Density of the grout
   c. Length of the guide strips
   d. Size of the wood blocks

6. When veneer is being installed, the tilesetter should apply a coat of neat cement to the: 6. ____

   a. Back of each tile
   b. Hard screeds
   c. Butter board
   d. Guide strips

7. Ceramic veneer may be cut with a: 7. ____

   a. Glass cutter
   b. Band saw
   c. Pitching tool
   d. Hacksaw

8. Before the tiles are set, the tilesetter should screed the mortar to the: 8. ____

   a. Hard screeds
   b. Guide wire
   c. Chalk line
   d. Guide strips

9. Ceramic veneer tiles are placed on the setting bed and then tapped: 9. ____

   a. To a true surface
   b. Along the story pole
   c. To the guide strip
   d. With a wood block

10. The top edges of ceramic veneer tiles may be adjusted to a true edge by using wood: 10. _____

a. Guide strips
b. Screeds
c. Dowels
d. Wedges

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UNIT E — SPECIALIZED JOBS

TOPIC 6 — MARBLE TILE

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. What should be the condition of a concrete surface before the application of marble tile? 1. ____

   a. Scratched
   b. Heavily sandblasted
   c. Marbleized
   d. Polished

2. What type of bond will be achieved if dust-covered marble tiles are placed directly onto a bonding coat? 2. ____

   a. Weak
   b. Strong
   c. Type A
   d. Medium

3. Which one of the following is considered good practice? 3. ____

   a. Leave voids on back of tiles for expansion.
   b. Apply bond coat with a brush.
   c. Apply bond coat to back of tile with a trowel.
   d. Place wet tile on bond coat.

4. Marble dust should be: 4. ____

   a. Mixed with grout
   b. Used for dusting the setting bed
   c. Removed from tiles
   d. Added to water

5. The highest bond strength for marble tile can be obtained with: 5. ____

   a. Latex portland cement mortar
   b. Organic adhesive
   c. Spacing mix
   d. Hydrated lime

UNIT E — SPECIALIZED JOBS

TOPIC 7 — DRAINBOARDS AND PULLMANS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. What is the focal point of a drainboard? 1. ____

   a. Faucet
   b. V-cap
   c. Splash board
   d. Sink

2. When laying tile on a drainboard, the tilesetter usually starts at the: 2. ____

   a. Front
   b. Back
   c. Faucet
   d. Center

3. When metal strip is used to support a V-cap, the joints should be kept: 3. ____

   a. 6 in. (15.2 cm) from corners
   b. 12 in. (30.5 cm) from corners
   c. 16 in. (40.6 cm) apart
   d. 32 in. (81.3 cm) apart

4. Before setting the V-cap, the tilesetter should give it a: 4. ____

   a. Single coat of mortar
   b. Double coat of mortar
   c. Light coat of pure cement
   d. Heavy coat of pure cement

5. When tile coving is used, how should the deck lath be placed? 5. ____

   a. Against the wall
   b. 1 in. (2.5 cm) from the wall
   c. 3 in. (7.6 cm) from the wall
   d. 5 in. (12.7 cm) from the wall

UNIT E — SPECIALIZED JOBS

TOPIC 8 — FLAT ARCHES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The interior curve of the arch is called the: 1. ____

   a. Spandrel
   b. Springer
   c. Extrados
   d. Intrados

2. The outer or upper curve of the arch is called the: 2. ____

   a. Extrados
   b. Intrados
   c. Soffit
   d. Lintel

3. The highest point of the arch is called the: 3. ____

   a. Bow
   b. Springer
   c. Crown
   d. Soffit

4. The part of the wall that directly supports the arch is called the: 4. ____

   a. Buttress
   b. Jamb
   c. Pilaster
   d. Abutment

5. The spring points are the points at which the under curves of the arch: 5. ____

   a. Begin.
   b. Intersect.
   c. Become thinner.
   d. Change radius.

6. What is the name of the uppermost or central voussoir in the arch? 6. ____

   a. Springer
   b. Key
   c. Skewback
   d. Bow

7. The vertical distance between the spring points and the highest point of the soffit is called the: 7. ____

   a. Span
   b. Spring line
   c. Rise
   d. Skewback

8. The tiles or stones that make up an arch are called: 8. ____

   a. Facades
   b. Voussoirs
   c. Skewbacks
   d. Intrados

9. The part of the wall from which the arch springs is called the: 9. ____

   a. Spandrel
   b. Pier
   c. Extrados
   d. Intrados

10. The width of the opening of an arch is called the: 10. ____

a. Crown
b. Haunch
c. Span
d. Spandrel

11. The points from which the under curves of the arch begin are called: 11. ____

a. Rise points
b. Voussoirs
c. Spandrels
d. Spring points

12. Arches are designed to transform certain forces into diagonal and horizontal thrusts. In what direction are these forces? 12. ____

a. Lateral
b. Lateral and downward
c. Upward
d. Downward

13. What is another name for a flat arch? 13. ____

a. Elliptical arch
b. Gothic arch
c. Jack arch
d. Segmental arch

14. The middle part of each side of an arch halfway between the crown and the skewback is called the: 14. ____

a. Haunch
b. Spandrel
c. Span
d. Rise

15 The inner side of a pier is called the: 15. ____

a. Jamb
b. Key
c. Abutment
d. Springer

UNIT E — SPECIALIZED JOBS

TOPIC 9 — CURVED ARCHES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. When an arch contains half of a circle, it is called a(n): 1. ____

   a. Three-centered arch
   b. Jack arch
   c. Semicircular arch
   d. Elliptical arch

2. Generally, the rise on a segmental arch is equal to: 2. ____

   a. The span
   b. One-half the span
   c. One-fourth the span
   d. One-eighth the span

3. What is another name for a pointed arch? 3. ____

   a. Jack arch
   b. Semicircular arch
   c. Gothic arch
   d. Segmental arch

4. The angles of radial joints on a three-centered arch can be determined by using the chord and a: 4. ____

   a. Square
   b. Pin
   c. Compass
   d. Triangle

5. The rise of a segmental arch depends on the: 5. ____

   a. Direction of radial points
   b. Span of the arch
   c. Width of the voussoirs
   d. Architectural design

6. The span of an elliptical arch is called the: 6. ____

   a. Minor axis
   b. Major axis
   c. Spandrel
   d. Soffit

7. In setting bullnose trim on the curves of an arch, the tilesetter should space the trim tiles so that: 7. ____

   a. The jamb tiles are evenly spaced.
   b. The soffit tiles can be removed without weakening the arch.
   c. The grout lines appear at the same places as those of the face tile.
   d. The grout lines do not appear at the same places as those of the face tile.

8. In one method of laying out an elliptical arch, the tilesetter uses a string and a: 8. ____

   a. Square
   b. Pin
   c. Triangle
   d. Ruler

9. The three-centered arch is a form of the: 9. ____

   a. Elliptical arch
   b. Pointed arch
   c. Jack arch
   d. Semicircular arch

10. Which one of the following statements concerning the characteristics of the segmental arch is not true? 10. ____

a. The curve has a constant radius.
b. The arch is less than half a circle.
c. It is a form of curved arch.
d. The arc is not perfectly smooth.

UNIT E — SPECIALIZED JOBS

TOPIC 10 — DOMES

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The circular ground strip for an interior or exterior dome can be made of wood or: 1. ____

   a. Tile
   b. Brick
   c. Casting plaster
   d. Brads

2. For the inside of a circular ceiling, the number of riding points for the template is: 2. ____

   a. One
   b. Two
   c. Three
   d. Four

3. On a template used for the outside of a dome, the number of riding points is: 3. ____

   a. One
   b. Two
   c. Three
   d. Four

4. A ½-in. (1.3-cm) strip of lattice tacked on the template for an interior dome provides a float for the: 4. ____

   a. Scratch coat
   b. Setting bed
   c. Riding point
   d. Ground strip

5. After a dome has been floated, the tilesetter should tack small exposed brads along the template to scribe level: 5. ____

   a. Rakes
   b. Groins
   c. Screeds
   d. Circles

6. When groins are used on large domes, 1-in.(2.5-cm) screeds are spotted at a desired distance along the: 6. ____

   a. Apex
   b. Center groin
   c. Circular ground strip
   d. Rough dome

7. The setting bed of a dome on which groins are used can be floated with a smaller template as long as this template spans two: 7. ____

   a. Ground strips
   b. Sides
   c. Screeds
   d. Points

8. Groins on large domes are used as: 8. ____

   a. Ground strips
   b. Hard screeds
   c. Runner strips
   d. Riding points

9. After floating is completed, the hard screeds of mud or plaster should be: 9. ____

a. Covered
b. Removed
c. Scribed
d. Raked

10. The uppermost point of a domed ceiling is called the: 10. ____

a. Rise
b. Key
c. Apex
d. Span

UNIT E — SPECIALIZED JOBS

TOPIC 11 — CIRCULAR WALLS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. After the top screed is floated on a large circular wall, the next step is to detach and adjust the: 1. ____

   a. Bridle assembly
   b. Center pole
   c. Wood float
   d. Radius stick

2. When a wall-supporting screed is being floated, strips must be set at the level needed to float the: 2. ____

   a. Wall (scratch coat)
   b. Wall (float coat)
   c. Floor
   d. Ceiling

3. The templates used for floating circular walls should be made of: 3. ____

   a. Aluminum
   b. Plastic
   c. ¼-in. (0.6-cm) plywood
   d. ¾-in. (1.9-cm) plywood

4. Large circular walls that must be perfect can be prepared with either hard horizontal screeds or a: 4. ____

   a. Wood float
   b. Trammel
   c. Precut straightedge
   d. Precut template

5. The radius of the setting bed of a circular wall is determined by the: 5. ____

   a. Distance from the center point to the scratch coat, minus the thickness of the setting bed and tile
   b. Radius of the scratch coat, minus the thickness of tile
   c. Circumference as measured with whole tiles, plus the thickness of tile
   d. Circumference as measured on the scratch coat, minus the thickness of the setting bed

6. The level line to be used as a guide for screeds on a large circular wall should be: 6. ____

   a. Drawn with chalk
   b. Scribed with a pointing trowel
   c. Snapped with a chalk line
   d. Scribed with a stick

7. The number of vertical float strips needed to float a circular wall with a template is determined by the: 7. ____

   a. Circumference of the wall
   b. Length of the radius board
   c. Size of the float strips
   d. Size of the template

8. The lattice strips used in floating contour walls are wet thoroughly so they will: 8. ____

   a. Bend.
   b. Float.
   c. Twist.
   d. Break.

9. What size rim should be left after the wall-supporting screed is trimmed? 9. ____

a. ½ in. (1.3 cm)
b. 1 in. (2.5 cm)
c. 1½ in. (3.8 cm)
d. 2 in. (5.1 cm)

10. A tool that can be used to make a level line on a circular wall is a: 10. ____

a. Plumb bob
b. Float strip
c. Water level
d. Straightedge

UNIT E — SPECIALIZED JOBS

TOPIC 12 — CIRCULAR COLUMNS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. Horizontal screeds used to prepare for the floating bed on circular columns are molded with a: 1. _____

   a. Rubber mold
   b. Plastic mold
   c. Template
   d. Plastic band

2. When vertical wood strips are used for floating a column, they are set plumb at how many points on the column? 2. _____

   a. Two
   b. Four
   c. Six
   d. Eight

3. The center of the pattern prepared for the vertical float strip method is used as a guide for cutting the: 3. _____

   a. Cylinder
   b. Tile
   c. Floating template
   d. Model

4. When vertical float strips are applied, the radius is figured: 4. _____

   a. Minus the thickness of the tile used
   b. Plus the thickness of the tile used
   c. Without reference to the thickness of the tile used
   d. Plus twice the thickness of the tile used

5. The outer pattern prepared for the vertical float strip method is divided into how many equal parts? 5. _____

   a. Two
   b. Four
   c. Six
   d. Eight

6. The divided pattern parts are fastened at which point on the columns? 6. _____

   a. Apex
   b. Base
   c. Middle
   d. Axis

7. The setting bed must be of a uniform depth on the: 7. _____

   a. Rough column
   b. Finished column
   c. Apex of the column
   d. Base of the column

8. The horizontal screed method is used on columns with bases that are: 8. _____

   a. Already tiled
   b. Already installed
   c. To be installed
   d. Stripped

9. How much time should be allowed for a plaster collar to harden? 9. ____

a. 1 hr.
b. 3 hr.
c. 8 hr.
d. 24 hr.

10. A level line around a plumb and parallel column is marked by the use of a guide made of a: 10. ____

a. Paper cylinder
b. Metal tape
c. Piece of plywood
d. Plastic mold

UNIT E — SPECIALIZED JOBS

TOPIC 13 — SWIMMING POOLS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. To lay out the racing lanes so that they will be straight on the bottom of the pool, the tilesetter should use: 1. ____

   a. Templates
   b. A plumb bob and a pulley
   c. A tape and marker
   d. A chalk line

2. What is the maximum distance that should be allowed between bench marks? 2. ____

   a. 2 ft. (0.6 m)
   b. 4 ft. (1.2 m)
   c. 6 ft. (1.8 m)
   d. 8 ft. (2.4 m)

3. In addition to racing lane markers, what other types of markers are laid at the same time as the face of the curb? 3. ____

   a. Width
   b. Lifeline
   c. Bench
   d. Depth

4. The bottom of the curb is floated and laid with: 4. ____

   a. Rubber spacers
   b. Float strips
   c. Mortar screeds
   d. A template

5. The rough handrail is formed by bending: 5. ____

   a. Templates
   b. Wire mesh
   c. Dowel rods
   d. Metal lath

6. The top of the handrail must be absolutely level, because: 6. ____

   a. The scaffold is built around it.
   b. Templates are to be laid against it.
   c. It is so close to the waterline.
   d. Other members are established from it.

7. A full-size detail sketch should be made of the curb, gutter, and: 7. ____

   a. Racing lanes
   b. Handrail
   c. Pool floor
   d. Steps

8. Before the scratch coat is spread on the handrail, which one of the following is applied? 8. ____

   a. Waterproof paper
   b. Building paper
   c. Mortar screeds
   d. Wire lath

9. The locations of intermediate screeds for floating the curved bottom of the pool are determined with a: 9. ____

a. Straightedge and tape
b. Taut wire
c. Template
d. Hand level

10. To float and lay the curved portions of the walls, the tilesetter should construct the templates to conform to the: 10. ____

a. Radii of the curves, at intervals of 6 ft. (1.8 m)
b. Spring lines of the curves
c. Varying radii of the curves at certain points
d. Curves at each corner

UNIT E — SPECIALIZED JOBS

TOPIC 14 — FOUNTAINS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. After the scratch coat has been applied to the walls of a fountain, the tilesetter may have to apply: 1. ____

   a. A plumb coat
   b. A float coat
   c. Pure cement
   d. A second scratch coat

2. The wooden square for floating walls should be built to: 2. ____

   a. Inside rough dimensions
   b. Outside rough dimensions
   c. Inside finish dimensions
   d. Outside finish dimensions

3. After the floor or walk level has been determined, the next step is to: 3. ____

   a. Determine the center point of the floor.
   b. Set screeds to the floor level.
   c. Build a wooden square to go inside the fountain.
   d. Determine dimensions for a float strip gauge.

4. The wooden square must be as perfect as possible, because it will affect: 4. ____

   a. Straight-joint tile layout
   b. Constant curb height
   c. Outside wall layout
   d. Floor screed layout

5. The accuracy of the wooden square is checked by: 5. ____

   a. Lining it up with the concrete forms
   b. Squaring it with the centerline of the fountain
   c. Checking the dimensions against the plans
   d. Squaring the corners with a framing square

6. If the finished thickness of a fountain wall is 5 in. (12.7 cm) and the tile to be used is $\frac{5}{16}$ in. (0.8 cm) thick, what should be the length of the wood gauge for floating the outside walls? 6. ____

   a. $4\frac{1}{8}$ in. (11.2 cm)
   b. $4\frac{11}{16}$ in. (11.9 cm)
   c. $5\frac{5}{16}$ in. (13.5 cm)
   d. $5\frac{1}{8}$ in. (14.3 cm)

7. Which one of the following steps comes next after setting tiles on the inside corners of a fountain? 7. ____

   a. Placing the square inside the fountain
   b. Setting the floor screeds
   c. Laying out the curved walls
   d. Floating the outside corners

8. The center section of a fountain is installed immediately after the: 8. ____

   a. Circular walls are completed.
   b. Wooden square is nailed down.
   c. Corner walls are completed.
   d. Floors are grouted.

9. Concrete is poured around the water pipe after the: 9. ____

a. Inside walls have been floated.
b. Outside walls have been floated.
c. Square has been set inside the fountain.
d. Forms have been built and checked.

10. Tile for the floor of a fountain is laid: 10. ____

a. As soon as screeds have been set down
b. After the outside corners have been floated
c. Immediately before the center section is installed
d. After the center section is installed

UNIT E — SPECIALIZED JOBS

TOPIC 15 — TILE STAIRS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. When a straightedge is used to test the construction of the stairway, it is: 1. ____

   a. Placed across each tread to test for level
   b. Placed across each riser
   c. Set on the stairs from nosing to nosing
   d. Laid along the wall to determine whether the risers are parallel

2. If the newel post is placed on the floor, the centerline of the post should be the centerline of the: 2. ____

   a. First tread
   b. Second tread
   c. First riser
   d. Second riser

3. If story poles are not used to lay out the treads and risers, which one of the following is used instead? 3. ____

   a. Screed strips
   b. Spirit level
   c. Straightedge
   d. Steel square

4. The upright part of a step is a: 4. ____

   a. Riser
   b. Nosing
   c. Tread
   d. Stringer

5. The line of travel on a curved stairway is usually 12 to 14 in. (30.5 to 35.6 cm) from the: 5. ____

   a. Wall
   b. Handrail
   c. Inside edge of the tread
   d. Outside edge of the tread

6. For good drainage, treads should be pitched how much? 6. ____

   a. 1/32 to 1/16 in. (0.1 to 0.2 cm)
   b. 1/16 to 1/8 in. (0.2 to 0.3 cm)
   c. 1/8 to 1/4 in. (0.3 to 0.6 cm)
   d. 1/4 to 1/2 in. (0.6 to 1.3 cm)

7. The procedure for determining the height of the riser is to: 7. ____

   a. Divide total rise by number of risers.
   b. Multiply number of risers by the total rise.
   c. Divide total rise by number of treads.
   d. Multiply number of risers by number of treads.

8. If the stairway is made of wood, what is the first procedure the tilesetter carries out to prepare the surface for tile? 8. ____

   a. Construct a story pole.
   b. Cover the surface with wire mesh.
   c. Apply the scratch coat.
   d. Apply waterproof paper.

9. For interior stairs what size riser is recommended as most comfortable? 9. ____

a. 5 in. (12.7 cm)
b. 6 in. (15.2 cm)
c. 7 in. (17.8 cm)
d. 8 in. (20.3 cm)

10. A "dog-leg" stairway has what kind of landing? 10. ____

a. A one-quarter-turn landing
b. Two one-quarter-turn landings
c. One half-turn landing
d. No landing

11. The vertical distance from finish floor to finish floor for a stairway is called the: 11. ____

a. Total rise
b. Total run
c. Line of travel
d. Tread rise

12. The overall horizontal distance occupied by a run of stairs is called the: 12. ____

a. Line of travel
b. Tread rise
c. Total run
d. Total rise

13. The vertical distance from the top of one tread to the top of the next is called the: 13. ____

a. Total run
b. Total rise
c. Tread run
d. Tread rise

14. The risers on outside stairs are usually: 14. ____

a. Shorter than those on inside stairs
b. Longer than those on inside stairs
c. The same as those on inside stairs
d. Not less than 7 in. (17.8 cm)

15. After the plans have been studied carefully for the layout of the stairs, what procedure is followed next? 15. ____

a. A pair of dividers is used to step off the required space.
b. The rise and run of the stairs are determined.
c. The size of the treads is determined.
d. Story poles are constructed.

UNIT E — SPECIALIZED JOBS

TOPIC 16 — ROMAN TUBS

Decide which of the four answers is correct, or most nearly correct; then write the corresponding letter in the blank at the right.

1. The lining for a roman tub should be nailed or stapled: 1. ____

   a. At the sides and bottom
   b. Around the drain only
   c. Just below the waterline
   d. Above the waterline

2. The floor of the finished tub should have a maximum pitch toward the drain of: 2. ____

   a. ⅛ in. (0.3 cm) per foot (30.5 cm)
   b. ¼ in. (0.6 cm) per foot (30.5 cm)
   c. ½ in. (1.3 cm) per foot (30.5 cm)
   d. ¾ in. (1.9 cm) per foot (30.5 cm)

3. How thick should the floor mortar be? 3. ____

   a. ¼ in. (0.6 cm)
   b. ½ in. (1.3 cm)
   c. ¾ in. (1.9 cm)
   d. 1¼ in. (3.2 cm)

4. The cement mortar for a tiled tub must be mixed with a(n): 4. ____

   a. Adhesive
   b. Sealing compound
   c. Accelerator
   d. Waterproofing admixture

5. What should be placed around the weep holes to keep them open? 5. ____

   a. Absorbent material
   b. A metal ring
   c. Plastic tape
   d. Wire mesh

79-231 (03-0437) 82119 8-81 4500